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XLII

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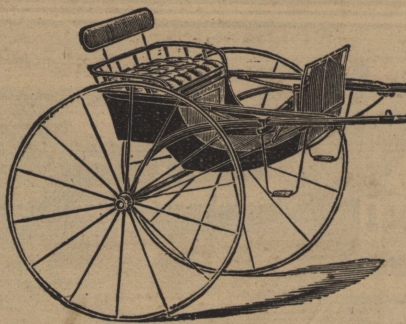
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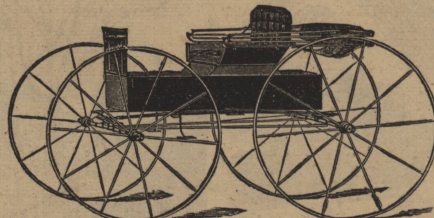
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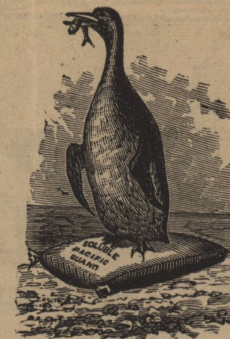
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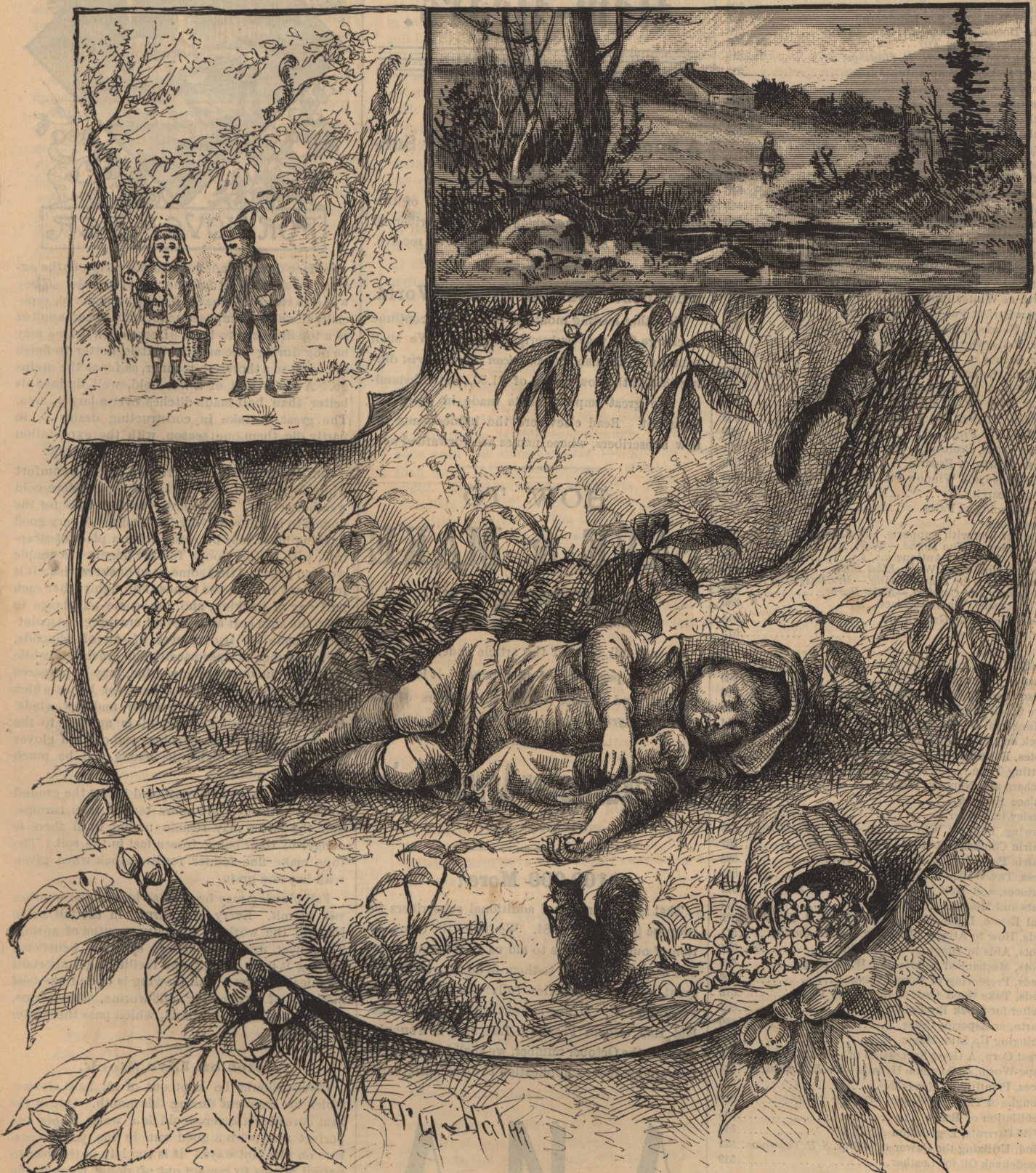
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VOLUME XLII.—No. 11.

NEW YORK, NOVEMBER, 1883.

NEW SERIES—No. 442.



## NUTTING TIME.

Drawn and Engraved for the American Agriculturist.

"O,—fruit loved of boyhood!—the old days recalling,  
When wood-grapes were purpling and brown nuts were falling!"—WHITTIER.



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HOW TO  
SAVE & MAKE  
MONEY.

Do not fail to read the article under the above heading on page 541 of this paper. It is full of interest, and applies to all the readers of the *American Agriculturist*, men, women, and children.

## Amerikanischer Agriculturist

See page 540.

100,000 More!

That is the number of additional subscribers we propose to have for 1884. We invite the co-operation of our subscribers to aid us in securing them, and as an inducement to them to do so, we offer the great variety of articles fully described in the Premium List. If any subscriber has lost or mislaid this elegant Premium List, sent as a supplement to the October number, we shall be pleased to forward another on application to us by postal card.

A. 14 A.

This is not a puzzle, but a plain statement of a truth, a full explanation of which is presented on page 539 of this number of the *Am. Agriculturist*.



Surface drains made in autumn carry off the excess of water during fall and winter months. They will also remove valuable fertilizing material, especially if well-decomposed manure has been applied as a top-dressing to land. Deep, open drains may be dug during late autumn. It is better to finish the work in a thorough manner, as far as the drains go. A small part of a wet field, well drained, is better than half-made ditches over a larger area. The great mistake in constructing drains is, to partly dig them one season, with the expectation of finishing the work at some future time.

Corn is husked with the greatest ease and comfort while in the field, if this work is done before cold weather sets in. There are several devices for the fingers to aid in removing the husks. A very good husking-hook may be made from a piece of strap-iron, with leather loops for the fingers. A simple wooden peg is all that some good huskers wish. It is important to wash the hands thoroughly after each half day of husking, and use some substance to keep the skin soft and prevent cracking. An ointment made of two ounces of oil of almonds, half an ounce of spermacetti, one drachm of white wax, and one ounce of glycerine, may be prepared by any druggist, and is excellent for hands which are roughened by cold weather and raw winds. If this or a similar ointment is applied to the hands, warmed in at evening, and old kid gloves worn during the night, the hands will be much softened by morning.

Root crops should be gathered before the ground freezes. Mangels are more tender than turnips, and the latter may remain undug until there is danger of their being frozen fast in the soil. The tops make fine fodder for live stock when given with hay and grain.

Fall plowing may be done so long as the weather will permit. Every acre turned in the fall helps forward the work of the busy months of spring. The effect upon clay soil is specially beneficial, making it more porous, and facilitating important chemical changes. Fall plowing is one of the best methods of eradicating cut-worms, wire-worms, and many other insect pests, which pass the winter in the soil.

## Notes on Live Stock.

Horses should be kept out of all hard storms, which are frequent during this month. One of the best cures for a severe cold is a warm stable and perfect rest, with a good run in the yard or pasture on pleasant days. It is too late in the year to permit horses to remain out of doors through the night. Young colts and yearlings need plenty of nutritious food. Much depends upon the care which colts receive during their first winter. Oats are excellent for them; if corn is used, it should be fed with wheat bran. Use the brush freely on all horses and colts, and keep the skin clean and active.

Cows, which are to give milk through the winter,



need to be fed with special care at this time. If possible, the flow of milk must not be permitted to decrease. Mangels and sugar beets are excellent, cut in slices and sprinkled with bran. The rule, that good feeding brings good manure, should be kept in mind in a judicious care of farm animals during winter. Good feed in abundance is not enough; it should be given with regularity. The habits of different animals have to be studied, and treated accordingly. Scarcely any two cows or horses have the same appetites. It is important to so mix and change the feed, that sameness may be avoided. A variety of food encourages healthful digestion, and upon this the profits of the owner largely depend.

Sheep will bear more exposure than any other domestic animal, but even they winter poorly without a good shelter. Sheds and yards should now be put in order, that there may be no delays in getting the flocks into their winter quarters. Ewes should now be with young, excepting when late lambs are desired. Half a pint of corn per day will aid in keeping each ewe in a good condition. All weak sheep should be placed by themselves and fattened for market. It does not pay to keep second-rate animals.

Pigs are most profitable if fattened and sold before mid-winter. A large part of the food is used up in simply maintaining the animal during the coldest winter weather. Well-bred swine will sometimes lose in weight during a severe storm. Give the pigs all the corn, or other feed, they will eat during the fattening period. Keep the pens clean, with an abundance of litter, and supply all needed pure water.

### Work in the Orchard and Nursery.

Over a large extent of territory November is one of the most uncertain of months; it may be the beginning of a severe winter, or the end of a delightful autumn. The first object must be to secure the crops; the next to prepare the orchards for winter, and, lastly, if the weather allows, to do whatever work may save a day in spring.

*The Care of Fruit.*—Winter apples and pears should not be taken into the cellar until there is danger of freezing. They are much better off under a shed, so long as they can be kept there with safety. The fruit in undergoing the changes which take place in ripening, gives off heat, and the temperature of the cellar will rise from this cause. A thermometer should be kept in the cellar, and consulted. When it rises above thirty-five degrees, the windows should be opened. If fruit is stored in the house-cellar, establish, if possible, ventilation through a chimney.

*Draining the Orchard.*—A wet soil is a most unfavorable site for an orchard. Fruit trees are often planted on such land with the intention of draining it the next year, or soon after. Half-done work is rarely completed. Other work seems more pressing and the trees remain, year after year, with their roots in an unsuitable soil. As a consequence, the orchard is said to have "run out" before it has reached its full productiveness. Such orchards may usually be restored by draining, and in many localities no season is more favorable for laying drains than the present. Other work is not so pressing as in spring, and laying drains may be continued until cold weather prevents.

*The Protection of Young Orchards.*—Young trees will be greatly injured, especially when the ground is covered with snow, if cattle, horses, or sheep, find access to them. Let the fences be in order, and the gates fastened by a wire or in other manner, to prevent opening them. Mice and rabbits often do serious injury to young trees. Mice work under cover, and all weeds and rubbish should be raked from about the trunks, and sharp mounds of earth, a foot or more high, be made at the base of each. Mice will work under snow, if it is light and reaches above the mounds, and it is well to trample it firmly around each tree. Rabbits are most effectively kept off, on the large scale, by smearing the trees with blood from the slaughter-house, using a swab of

corn husks. Rubbing the trunks with liver, or bloody meat, answers the purpose. A shield of corn-stalks, or of laths, fastened by wire around the lower part of the trunks, will answer for a few trees. The boys should be encouraged to use traps; rabbits are best for the table in early winter.

*Planting Fruit Trees.*—Sufficient has been said on autumn planting in former months. How long it may be continued, will depend upon the season. Wherever the soil is in good condition, trees may still be planted, but by no means should they be set if the ground is partly frozen and unfit to come in contact with the roots. In such condition of the soil it will be better to heel-in the trees until spring.

*Stocks for Root-grafting.*—The work of root-grafting is done in winter; the stocks are to be taken up before the ground freezes, and placed in the cellar, with their roots covered with saw-dust or moss.

*Cutting Cions.*—Cions, whether to be used during the winter for root-grafting, or to be set in the branches of trees next spring, are much better if cut early, soon after the leaves have fallen. Cut only healthy, vigorous shoots of last summer's growth, from trees known to be true to name. Tie in bundles, placing a label with each variety, and for fear that this may be lost, cut on the lower end of one of the cions, a smooth place on which to write a name or number. Saw-dust is by far the best material for packing them. Quince cuttings may be made now, and stored in moss or in earth.

### The Fruit Garden.

Planting, as suggested last month, may be continued, if the season is favorable. Protecting such plants as require a winter covering, should not be done too early; when the surface of the soil is slightly frozen, is quite soon enough. Strawberry beds need the covering over the ground rather than upon the plants, where it should be very slight. Straw, marsh hay, and leaves, are the usual materials; in the absence of these, corn stalks are often employed. The tender kinds of raspberries are to be laid down and covered with earth. Where grape vines can be thus protected, it is useful, even for hardy kinds.

*Propagating.*—Nothing gives those who are interested in gardening more pleasure than the multiplication of their own plants. If not wanted for planting in their own gardens, they can have the satisfaction of presenting choice varieties to their friends. With many things in the fruit garden, the first step in propagating them is made at the fall pruning, as the portions removed in the operation are those best suited for cuttings.

*Blackberries and Raspberries.*—If the canes which bore the last season's fruit were not cut away before, they should be removed now. In a private garden, the suckers usually afford all the new plants that may be needed. Nurserymen propagate them from root-cuttings. These are two or three inches long, mixed with earth in a box, which is kept in a cool cellar, care being taken that the earth does not get too dry.

### Kitchen and Market Garden.

In a well-managed garden, as soon as one crop is off, the ground is made ready for another, if the season allows. In stiff soils, especially, plowing or spading, and leaving them rough through the winter, greatly improves them.

*Preserving Roots in Winter.*—Parsnips, salsify, and horseradish are not injured by hard freezing; all others must be stored for the winter, and a sufficient supply of the hardy kinds should also be taken up. We have described various methods of storing roots in back numbers of the *American Agriculturist*. If the cellar is not too warm, a supply for present use may be kept in boxes or barrels, and covered with earth, to prevent shrivelling.

*Cabbages.*—The usual method is to pull the cabbages, set them in a dry place, heads downwards, and on the approach of cold weather, cover with a coating of leaves up to the ends of the roots; light soil is often used instead of leaves. For family use, it is convenient to dig a trench where water

will not stand, and set the cabbages, with what soil adheres to the roots, close together, upright, in this. Make a sloping covering with boards. As cold weather comes on, place a layer of leaves or straw over the heads. Soft cabbages thus treated will very often form firm heads by spring.

*Asparagus and Rhubarb.*—Though these plants are quite hardy, the beds will produce all the better and earlier if they have a covering of three or four inches of manure. All litter should be first cleared off, and if not already done, the asparagus tops should be burned.

*Crops Wintered in the Ground,* such as spinach, sprouts, onion sets, etc., will need two or three inches of leaves, straw, or marsh hay, as a protection during winter, in all but very mild localities.

*Cold Frames.*—Novices are more apt to injure the cabbage, cauliflower, and lettuce plants wintered in these by keeping them too warm than by too much cold. The object of the frames is, not only to prevent too severe freezing, but all growth, and to keep the plants in a perfectly quiet or dormant state. The sashes should not be put on until really freezing weather, and on mild days must be tilted, to allow ventilation.

### Flower Garden and Lawn.

The principal work here is in preparing for winter quarters. The lawn should not have been mown too late, in order that it may have a protecting coat of grass over the roots. If thoroughly composted manure, sure to be free from weed seeds, is available, a liberal dressing of it this fall will show its good effects in the spring. In the absence of such manure, it is safer to use ashes, nitrate of soda, bone dust, and other safe fertilizers.

*Bulbs Tender and Hardy.*—The finer kinds of Gladiolus, Tiger Flowers, Tuberoses, etc., must be taken up before the ground freezes, and if any of the Holland bulbs are still unplanted, the sooner they are in the ground the better.

*Evergreens for Winter Effect.*—Several years ago we advised potting a variety of the low-growing evergreens, to be kept in reserve until late autumn, when they could be grouped in the beds formerly occupied by perishable plants. A bed of such evergreens, in view of the sitting-room windows, is a most pleasing object during winter.

### Greenhouse and Window Plants.

Plants taken up from the open ground should have the transition to the confined air of the greenhouse or dwelling made as gradual as possible. Placing them at first in a room without fire, will prevent the sudden change.

*Plants to be Forced.*—A number of hardy shrubs and other hardy plants may be forced, and make desirable ornaments to the windows or greenhouse. Weigela, Forsythia, and *Deutzia gracilis*, if grown small for the purpose, are excellent shrubs, and the Bleeding Heart (*Dicentra*) and the perennial Candytufts are good herbaceous plants for the purpose. After potting, they should have a rest of several weeks, in a frame or cool cellar, before they are brought to the heat.

*Bulbs in Pots.*—While Hyacinths, Narcissuses, and other bulbs may be grown in sand, saw-dust, moss, and other substances that will hold water, as well as in glasses of water, the bloom is never so satisfactory as when planted in pots of good soil. The best success is only attained when the pots are kept in the dark until an abundant growth of roots is formed. They may then be brought to the window or greenhouse in succession.

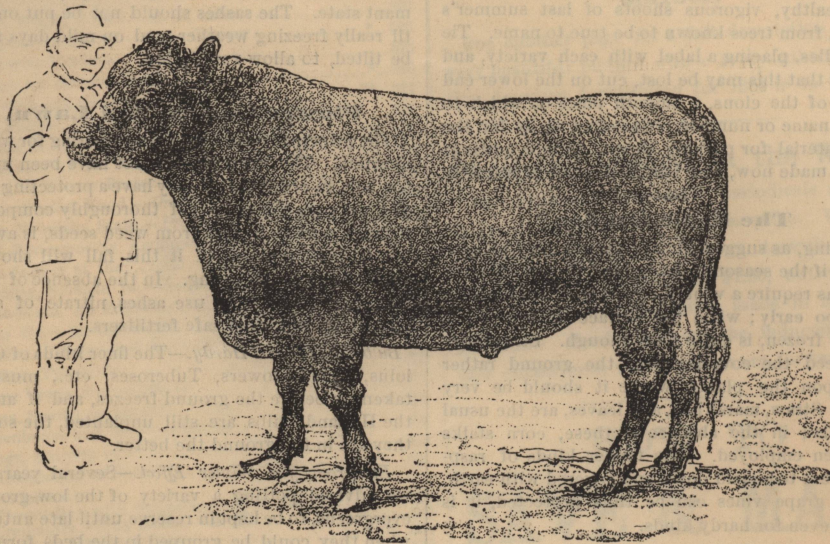
*Climbers.*—These add greatly to the beauty of the window-garden as well as of the greenhouse. Among the rapid growers is the so-called German or Parlor Ivy, and the Tropæolums. The European Ivy, though slow growing, is useful in the window.

*Insects.*—If the attack upon these is commenced before they appear to be troublesome, they may be easily kept in subjection. A stiff brush alone will do much on hard-wooded plants. Strong soap-suds or tobacco-water will kill the majority.



### Polled Cattle.

There was a fine exhibition of Polled Angus cattle at the show of the New York State Society this year at Rochester. In previous years, the Red Polled Norfolks and Suffolks have been exhibited. The former are essentially a beef-breed, while the latter combines milk and flesh. Within a few years past, the Angus, which are a black, Scottish breed, occasionally marked with white, have been introduced upon the plains with most excellent results. As we have before stated, the grade animals are almost uniformly hornless, and of a tractability and docility which surprises the cow-boys. A few lots of steers, which have come to market, delight the drovers and butchers by keeping up in weight. They are less nervous, less given to bullying, and can hardly do one another any harm if they wish to. The shrinkage of beef is due largely to the horns, which are uncomfortable to the wearers in crowded cars, dangerous to drivers, and to the other animals carried. It is bad enough for

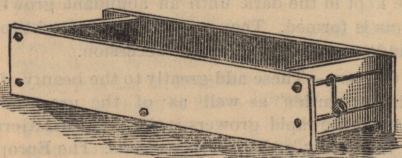


A FAT POLLED HEIFER.

fat steers to be so crowded and jammed for a journey across the Continent in narrow cars, but if they are not crowded, so that they can hardly move, they would soon use their liberty to punish their neighbors for being in their way. The Polled cattle pack closely, travel quietly, and shrink but little. We present an engraving of a fat Angus heifer, shown at the Islington Fat Cattle Show in England. She illustrates the characteristics of the breed, smoothness, depth, breadth, fineness of bone, and a minimum amount of the waste parts. She would be nearly a perfect parallelopipedon of flesh, if her head and legs were removed from her body.

### Good Stone Troughs or Tanks.

Harvey Richardson, of Orange County, has shown us an unpatented stone water-tank, or trough, of his own construction, which appeared so neat, effective, and readily constructed by almost any one, that we made a sketch of it. These troughs may be of any length, width and depth desired, according to their position, use, and the size of stones available. Here are the figures of the one sketched :



The two side pieces are flagging stones, six feet long and twenty-seven inches wide. The bottom piece is four feet ten inches long, two feet wide; and the two end pieces, two feet long, twenty inches wide, or high. These stones were all a little under

two inches thick. Five rods, of three-eighths inch round iron, have flat head on one end, and screw and nut on the other; or, there may be simply a screw and nut on each end; they must not extend out to be in the way. Five holes are bored or drilled through each side-piece, which is easily done with brace and bit in ordinary stone. The middle hole is four to five inches above the bottom edge, so that the rod through it will fit under and partially support the bottom stone. The end rods are about four inches from the ends of the side-pieces, and stand clear of the end stones in this case so that the dipper handles hang upon them; but they may run against the end stones. When setting up, the stones being placed nearly in position, newly-mixed hydraulic cement is placed in all the joints, and the rods screwed up firmly. The mortar squeezed out in tightening the rods is smoothed off neatly, so that when hardened the whole is almost compact solid stonework—if good water lime be used. Almost any flat stones will answer, if the edges of the bottom and end-pieces be dressed and a somewhat smooth groove be cut

in the side-pieces for them to fit into or against. The mortar will fill up any irregularities. A little grooving will give a better support to the bottom-piece and the ends than the simple cement and small rods. It will be noted that the side-pieces extend down, like sleigh-runners, leaving an open space below. A hole can be drilled in a lower edge to let out the water in hard freezing weather, and be stopped with a wooden plug. Such tanks will keep water purer than wood, and last a century or longer, if not allowed to be broken by freezing. Any leakage can be quickly stopped by draining off the water and applying a little cement mortar where needed. When flagging or other flat stones are plentiful, the work and cost would be little, if any, more than for wooden tanks. They can be set in the ground if desired. The iron rods need painting, or covering with asphalt, to prevent rusting.

### Plant Trees on the Roadsides.

Trees may be planted at any time before the ground freezes solid, or as soon as it fully opens in spring. Early spring would be preferable on some accounts; but if left until then, the hurry of work, often delayed by cold and wet weather, is likely to interfere. It is better, therefore, to get every hardy tree possible into its permanent growing place now. And every year it is delayed is no trifling loss. A hundred trees can be set at a cost of ten to twenty dollars, or for almost no cost, if one has spare time and the saplings are easily available. These may in ten to fifteen years grow to be worth three to ten dollars apiece for needed timber and fuel, or for the fruit or nuts produced.

It would be greatly to the advantage of the country, its climate, and its beauty, if the sides of our public highways generally were planted with

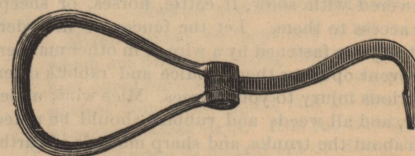
trees that furnish shade and ornament while growing, and supply at no distant period wood for various purposes. Some years before they mature sufficiently to be cut down for use, new plantings alternating with the older trees can be coming forward to take their places, or slow and quick-growing varieties may be set, so that when the latter are removed the former will be large enough to soon fill the gaps. It is desirable, however, to have together those that somewhat resemble each other in form at the top. We have in mind a broad street, ninety feet wide, where twenty-five to thirty years ago various oaks were set, thirty to forty feet apart, ten feet from the outside, and between these, in a line with them, quick-growing maples were planted. Recently the maples were all removed, furnishing a cord of wood apiece, with considerable useful timber, and the oaks now stand in two beautiful rows.

The French give more attention to roadside trees than any other people. We remember to have ridden hundreds of miles in Southeastern France, where in every direction the country roads could be followed, as far as the eye could see, by the double rows of trees—which there were largely the Lombardy poplar. From recently published statistics, we learn that there are in all France eighteen thousand seven hundred and fifty miles of public roads, of which over seven thousand miles (forty per cent) are bordered by trees, and over four thousand miles are now being planted. On the remaining portions the soil or other circumstances do not allow continuous borders. The total number already planted is nearly three millions (2,678,603)—most largely elm, poplar, acacia (locust), plane, ash, sycamore, and lime trees, but with many fruit, nut, and mulberry trees. A stranger, having the official records with him, could almost decide what Department he was traveling in, by the kind of trees along the road. He would find the nut trees, especially the chestnut, most in vogue in Ain, Ailler, Aube, Gironde, and eight or ten other Departments; the apple-tree, in Cote d'Or and Marne; the mulberry, in the Eastern Pyrenees, Haute Marne, etc.; the cherry, in Doubs, Indre, Jura, Landes, etc.; the pear, in Eure and Marne; the service tree, in Haute Loire, and so on, throughout the whole territory.

As to loss of land from spreading roots and from shade, if planted a few feet from the fence, the roots can be kept from the crops by a deep furrow along the inside of the fence every year or two, and the shade will not be a serious detriment—none at all from trees on the south side of roads running easterly and westerly. Those on the northerly side of the road furnish a very desirable shade to animals in the adjoining pastures.

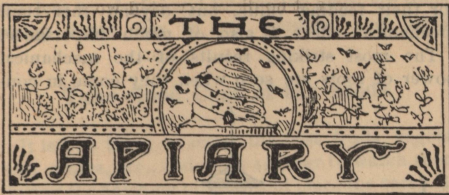
### A Cleaner for Horses' Hoofs.

The engraving herewith given shows a simple and convenient implement for removing stones and other substances from between the frog and the ends of a horse's shoe. Its value for this and other purposes will be quickly appreciated by every driver and horse owner. When not in use, the hook is turned within the loop of the handle, and the whole is easily carried in the pocket. The engraving shows the implement open, two and one-half times reduced in size. If horsemen keep this cleaner within easy reach, it will often serve a good turn, and be of greater value than a pocket cork-screw. An editor of the *American Agriculturist* has found one of these contrivances, im-



ported from England, of so great benefit, that the Publishers have caused them to be manufactured in this country. We will mail one, post-free, to every new subscriber of the *American Agriculturist* who sends us the subscription price, \$1.50 a year.





### Bee Notes for November.

If the bees are to remain on their summer stands, either in chaff hives or in packing, they need but little attention this month, or until next April. Do not let the entrance become closed with ice or snow. If the swarms are to be wintered in the cellar or beehouse, they should be carried in early this month, before severe weather comes. The bees should be disturbed as little as possible, while they are carried in-doors. Leave the entrance to the cellar open, and the covers off of the hives. We prefer to place a piece of carpet or other heavy material over the hives, that will retain heat, but allow the free passage of moisture. Once in a dark and well-ventilated cellar that maintains a uniform temperature of from thirty-eight to forty-eight degrees Fahrenheit, the bees will need no further care until April. If they remain quiet in the cellar, we may know that all is right; but if they become restless, and loud buzzing is heard, and the hives are soiled about the entrance, they should be allowed a flight the first warm, pleasant day. It is better to arrange the cellar for sub-earth ventilation and avoid removing the bees to the open air for a flight. If they are carried out, they should be returned at night-fall, where they will remain quiet for the winter.

#### HONEY—MARKETING.

The autumn is a leisure time in the apiary, and affords an opportunity to look after the honey. Honey should always be kept in a warm room. In October and November the extracted honey should be placed in kegs, bottles, cans, or pails, ready for market. The tin pails now used and sold with the honey, are cheap and satisfactory. By use of these vessels and elegant labels, now in the market, it is easy to sell all the extracted honey that is made. The label should give the kind of honey, and tell how to reliquify it, when candied. It is well to state that granulation is the best test of purity, and causes no damage if the honey is not overheated in reliquifying it. The name of the apiarist should not be omitted from the label—if he is not in bad repute.

In selling comb honey, the sections should be cleaned of all propolis, or bee glue, and if the market will warrant it, each section should be glassed.

#### STIMULATING THE HOME MARKET.

Bee-keepers are often unwise in not working up their home markets. Very few groceries have honey to sell for any considerable part of the year, and when they do have it, it is rarely arranged in an attractive manner or in a conspicuous place. If all grocers exhibited honey in a neat case, which would keep flies and fingers out, we should find that, overstocking the market, is well-nigh impossible.

### Protecting Grape Vines.—Simple Method.

BY PROF. J. B. DE MOTTE, GREENCASTLE, IND.

This season's experience here proves very forcibly the advantage of winter protection for even the hardiest native grape vines. Last winter, though severe, was not colder than one in every three, yet the iron-clad Concord shows only a very few poor bunches, and no fine ones except in the few instances where the vines were laid down and well covered. These were loaded with bloom, and after thinning to six bunches to the double spur the clusters are magnificent. The vines are unusually vigorous, while those unprotected are feeble, with many open spaces where the wood was killed. Many of the so-called hardy varieties are killed to the ground.

How may we secure such protection most economically, with the least bending and twisting of the main vines? After growing all the standard varieties and most of the newer sorts, and trying

many methods of culture and training, I have adopted the Folding Trellis as the best, all things considered, and present it herewith, hoping that many readers of the *American Agriculturist* will try it, and see how easily they can fold away a hundred vines for winter, after pruning the surplus wood, and lift them again in spring, even dropping them half a dozen times during the frost months, if desired. Five minutes suffice to fold a two hundred feet row, and the covering of straw will take care of itself when the trellis is raised.

Space the ground with pegs five feet apart in ten foot rows. Set good five-foot posts three feet deep, very straight along the rows, beginning two and a half feet from the outside peg; the second ten feet from the first; the third five feet from the second, and so on. Each section of the trellis consists of three horizontal pieces, fifteen feet long, one and a half by three inches, screwed three feet apart to upright slats placed five feet from each other—these uprights having the vines fastened to them by leather loops. The horizontal vines are fastened in the same way to the pieces. The uprights are eight feet long, and screwed edgewise to the frame, extending two feet below it to the ground, so that they can be bolted to the posts. A twelve-inch plank is fastened on top, to protect from light frosts, heavy dew, and hail.

The vines are trained on the horizontal arm, in the short spur plan, with double rows. Short-jointed varieties, like the Delaware, should be planted for the lower arms, and more vigorous growers, like the Concord, Lady Washington, Poeklington, etc., for the upper. Where an arbor is desired, a second frame can be bolted to the top of this one, to ridge against a similar one in the next row, making a roof, the rows being set closer together. This frame is let down first, then all folded over together. After the fall pruning, the upper bolt which holds the frame to the post is unfastened, the key is removed, and the sections are laid down and covered with straw for the winter. Not a vine has to be unfastened, no sharp bends are required, and the wood is all protected.

### Aids in Digging Root Crops.

Figure 1, shows a carrot and sugar beet lifter made in the following manner: Take a piece of hard-wood, two and a-half by three inches, and six

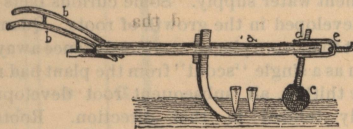


Fig. 1.—A ROOT LIFTER.

feet long, for the main piece *a*, into which make a mortise two feet from the wheel end, to receive the lifting foot (figure 2); attach two handles, *b, b*, at one end, and a wheel, *c*, at the other. This wheel can be set high or low as desired, by the set screw, *d*, in the clevis, *e*. Figure 2 shows the lifting "foot" separate from the machine. This is made of flat iron or steel, five-eighths inch thick and three inches wide, with a steel point and a small wing at the bottom. It is in the curved form seen in the engraving. The roots are first topped with a sharp hoe or sickle, two rows of tops being thrown into

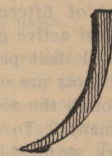


Fig 2

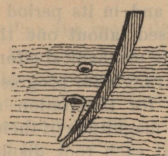


Fig 3

one, which leaves one side of the rows clear for the lifter. The horse walks between the rows and the foot of the implement enters the ground at the side of the roots in a slanting direction, as shown in figure 3, lifting the roots so they may be rapidly picked up. The implement is very easily made to

run deep or shallow, by simply changing the wheel and lifting, or pressing down, upon the handles.

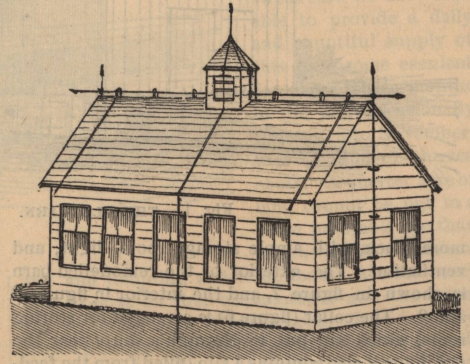
A "foot" made in the form of figure two, may be placed in the centre arm of a common horse hoe with sides closed, and used as above.

### How to Attach Lightning Rods.

BY F. D. CURTIS.

Several barns in my neighborhood supplied with lightning rods having been struck by lightning, I concluded that there must be something defective in the arrangement. In every case, either the peak at the gable end, or a corner post had been struck, the rod being in the centre and the connection with the ground in the middle of the barn.

The rod on my barn was similarly placed, but fifteen years ago I had it taken down and changed as



shown in the engraving. Common half-inch iron rods had the ends so turned that they could be hooked together on the roof, and by driving an iron wedge underneath they could be brought into close contact. Common iron staples fastened the rods to the roof. These rods were placed the whole length of the peak and joined together, the ends projecting three feet beyond the gables. At the gable-ends rods were hooked on each side of the roof, and extended down over the corner posts and projected two feet beyond. A rod, connected with the end projecting over the gables at the peak, extended into the ground for a distance of nine feet. At the centre of each building an upright rod is placed with a pointed end to which the rods on the peak are attached. This rod runs to the ground and into it to the depth of nine feet. My idea was to have every corner of the building, as well as the whole peak, protected by a rod so that if the lightning should strike at any point it would be quickly conducted into the ground. Set upright points at the gable ends, on large buildings. There are several hundred feet of these rods on my barns which have never been damaged by lightning.

### Praiseworthy Fair Arrangements.

At the Orange County (N. Y.) Fair we noticed three features, which, though not novel, are far too often overlooked; indeed they are the exception rather than the rule. First, there were "retiring rooms" for both sexes, properly designated, and at points convenient of access. Second, tanks and barrels of ice-water at many points, kept well filled, and each supplied with several drinking cups, which, in this case, were small, bright galvanized-iron dippers, with long handles that prevented their sinking out of reach, and terminating in a curve, or hook, by which they were readily hung upon the edges of the barrels, and upon iron rods by the sides of the tanks. Third, a large number of seats, boards upon blocks, etc., placed in the shade of the principal building, and of trees. These should always be provided for at least one-fourth of the attendants present upon any day. Boards, or planks, for this purpose, can usually be borrowed or rented cheaply at the lumber yards, as no cutting or nailing is needed. A little attention to such particulars will add immensely to the popularity of the fairs, and to that of the managers.



## A Remodelled Barn.

FIRST PRIZE BY A. A. WOOD.

Figure 1 shows an old New England barn, which furnished a fair amount of shelter to a few head of live stock. It was inconvenient for winter work, and had no provision for the economical saving of manure. Figures 2 and 3 show the interior of the old barn. An addition, figures 4 and 5, sixteen by sixteen feet, was erected; a second floor for storage of fodder was put on, and the cattle stable transferred from the cellar to the ground floor. With these changes the barn accommodates

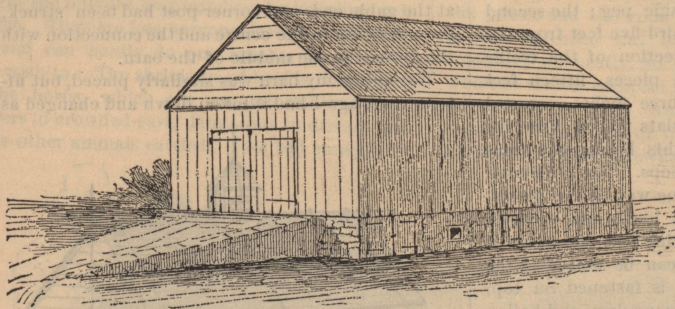


Fig. 1.—THE OLD BARN.

more stock, with ample storage room, light, and ventilation. The exterior of the remodelled barn is shown in figure 7, and the interior in figures 8 and 9. The cellar (figure 6) is arranged for storing roots, which are put in through a chute near the end door; it also contains a silo (filled from the feeding floor), manure pits, and a wagon shed. The old barn was not wide enough, and an addition along one side secures two rows of cattle stalls, if

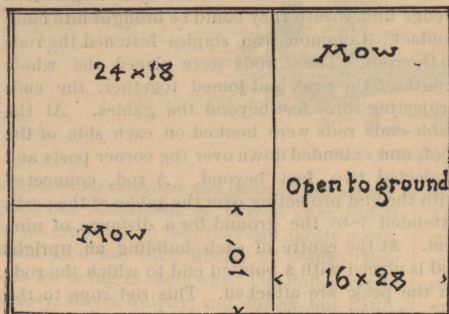


Fig. 2.—HAY FLOOR OF OLD BARN.

desired. The frame of the old barn was sound, and required no important changes. The materials used in the main building are as follows:

4,400 feet matched Siding, @ \$25 per M.	\$110.00
1,900 feet Chestnut Plank for floor, @ \$25 per M.	47.50
1,900 feet Spruce Flooring, @ \$22 per M.	41.80
24,000 Shingles, @ \$3.50 per M.	84.00
600 feet Spruce Plank for stalls, @ \$20 per M.	12.00
1,000 feet, 2x6, Spruce Joist, @ \$16 per M.	16.00
250 feet, 3x4, Spruce Stall Posts, @ \$16 per M.	4.00
2 large Doors.	25.00
Cupola Ventilator.	20.00
Stone Work in Silo.	50.00

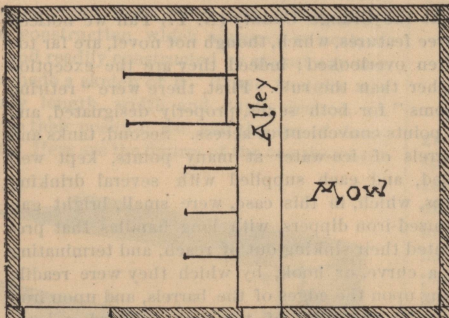


Fig. 3.—BASEMENT OF OLD BARN.

### MATERIAL IN THE ADDITIONS.

600 feet Siding.	15.00
168 feet, 4x6, Bottom Sills and Posts.	2.69
684 feet, 2x6, Studs, Rafters, etc.	10.94
256 feet Spruce Flooring.	5.63
500 feet Spruce Plank for horse stable.	12.50
3,500 Shingles.	12.25
Total.	\$49.31

The skilled labor necessary to remodel the barn should not cost over one hundred dollars. To this

add twenty-five dollars for hardware, and fifty-five dollars and sixty-nine cents for items, as glass, etc., not above mentioned, and we have the grand total of six hundred and fifty dollars for the cost of reconstruction. This estimate of expenses can only be general, and is mainly intended to show that the changes are important ones, easily made, and within reach of many farmers having poor barns.

## The Mechanical Efforts of Roots.

People who are not in the habit of observing closely, fail to understand the forces exerted by plants in their development, and more especially is this true of the phenomena connected with the growth of roots. There are so many obstacles to their study that a great deal yet remains to be learned, but we can easily see that one of the most remarkable features of roots is the power exerted in their growth and development. The above ground portion of the plant begins its existence amidst the most

auspicious surroundings, with nothing to resist the expansion of its leaves or the growth of its twigs. But the roots from the very outset are enveloped in a dense solid material that would apparently stop the progress of even much stronger forces; their tips are composed of the most delicate tissue to be found in any part of the plant, and their whole structure is soft and yielding. At first the roots are the merest threads, twisting and turning among the particles of soil, but as soon as they are once established, the increase in thickness begins, the tissues harden, and obstacles are slowly but surely pushed to one side. The process is the same in all plants alike, from the coarsest to the most delicate, but often the smaller plants give apparently the strangest examples. A clover plant on the banks of the Connecticut River sent its roots perpendicularly downward eight feet in search of water. Indian corn spreads a perfect network of roots through the soil for a distance of from three to six feet in all directions, and downward to a permanent water supply. Some curious facts have been developed in the growth of roots. Quantities of plant food were placed at some distance away, and as soon as a single "scout" from the plant had made its way thither, all subsequent root development strongly tended in that direction. Roots of trees and other plants, after having penetrated the soil for long distances in search of water, often choke up drains and wells by their excessive growth in that direction. Inasmuch as a vigorous condition of the plant, and especially its ability to withstand drouth, depends upon its root development, it is evident that the best disposition of fertilizers is that which will induce a growth of roots in all directions, and this means sowing the fertilizers broadcast.

The amount of root area which a plant occupies is often surprising. There is a general idea that it equals the extension of the plant in the air, but really it often exceeds this. A squash vine, under investigation at the Massachusetts Agricultural College, in 1874, produced a total of fifteen miles of roots, and in its period of most active growth it increased about one thousand feet per day.

The true mechanical efforts of roots are exerted in their struggle for progress through the soil, and examples for illustration are many. To understand the magnitude of their work, we must bear in mind that each root displaces an amount of soil equal to its own bulk. Take for instance a crop of mangel wurzels, and imagine what an upheaval must have been produced in the soil by the growth of its enormous mass. The whole surface of the field is raised and its particles loosened.

In practical questions of the farm, this power is of value. Those who give turnips and mangels a place in their system of rotation, do so ostensibly

for their feeding value, but beyond this their mechanical effect is also of much importance.

The most striking results of the mechanical power of roots are seen when they come in con-

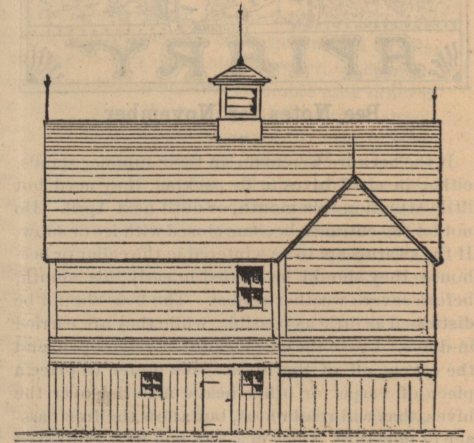


Fig. 4.—END VIEW OF WING.

tact with the most resisting obstacles. They have been unearthed from compact gravelly soil, where the struggle for room had been so fierce that they became distorted out of all natural shape. It is not unusual to find trees growing in the clefts of

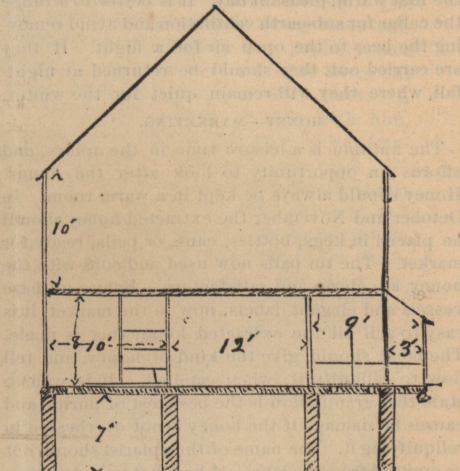


Fig. 5.—CROSS-SECTION OF WING.

ledges, showing unmistakably that the expansion of the roots has forced the rock apart. A case is cited, on good authority, of a root of the sugar maple that had pushed its way under a rock weighing nearly two tons, and by its enlargement lifted it entirely from its bed. Trees have been observed growing on the bare rock, resting upon their roots which ran out into the soil on either side, and yet

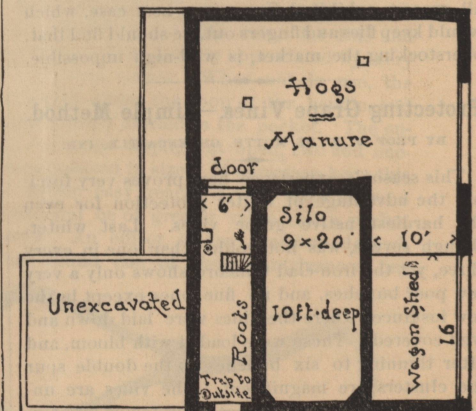


Fig. 6.—PLAN OF CELLAR.

these roots, supporting the enormous weight of the tree, formed each year new growth on their underside, and lifted the tree by the space of its thickness until seven inches of wood had been formed under the severe pressure.

Many people will be able to recall similar in-



stances, and a day's tramp through the woods will be sure to reveal them, while less striking, but none the less wonderful and interesting feats, are transpiring every day in our gardens and fields.

### Take Good Care of the Seeds.

It is one thing to select the best fruits, vegetables, grains, etc., and quite another to watch them during the finishing process, and place the carefully gathered seed where it will keep well and can be found when wanted for planting. This latter is where most farmers and villagers fail, and the seed bag, after a few years, becomes a motley gathering of pepper seed dried in the pod; onion seed of many years growth, without label; beet seed, where man-gold, sugar beet, and the early and late varieties are all mixed, and a promiscuous gathering of home grown and purchased varieties, without a single date to tell how old they are. This of course makes the farmer's garden uncertain and discouraging to the owner, and he comes to believe that it is of no use to save seed, and not much use to plant a garden. If he plants at all he relies upon the seed sold at the stores, put up in boxes and labeled but not dated, to facilitate repacking with every new year's distribution. It requires time and patience, a careful attention to details, to secure the good seed you have selected, to put it in packages with label and date, and then to box it where it will be secure from moisture, insects, and mice. These are the kind of riches that the moth corrupts, and thieves break through and steal. If you have any doubt on this point hang up your seed corn in a building infested with mice. It is better to dry the ears, especially of sweet corn, by artificial heat, and pack the seed in a tin case, proof against rats and mice. The yellow cu-

### A Good Succession of Sweet Corn.

We were talking with our neighbor the last of August. He is a thriving farmer, and derives a large part of his income from his woodland, carting railroad ties, timber and wood six miles to market. He was lamenting that he had only just got to eating sweet corn, had lost the early kind of seed he once had, and the sweet corn season would be a very short one at his house. A great many farmers are in the same predicament, or worse.

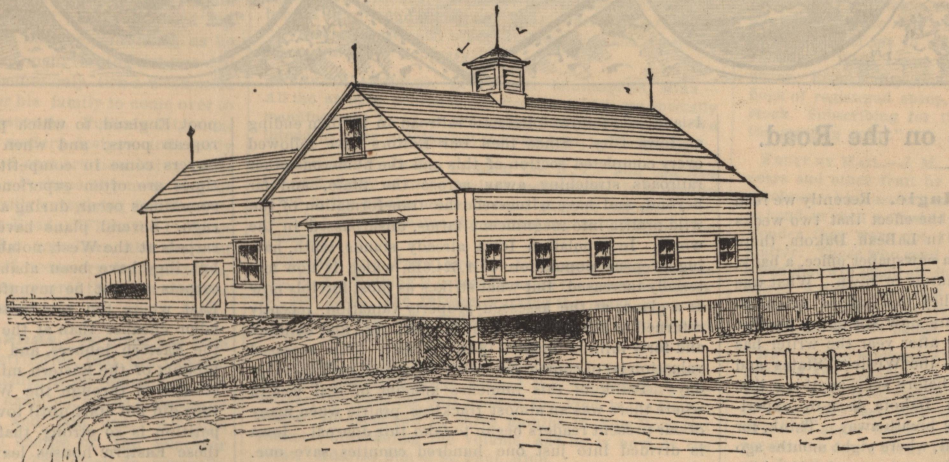


Fig. 7.—EXTERIOR OF A REMODELLED BARN.

Many have no sweet corn at all, and depend upon the flint field corn for their roasting ears and succotash for a season of three weeks. Others have one variety of sweet corn, planted about the middle of May, and ready for the table about August tenth. They have but one planting, and the season is barely three weeks at the best. This brief period of epicurean delight with the best vegetable that comes to our tables during the summer, is living far short of our privileges as the tillers of the soil. In the latitude of middle New England and New York, there is little difficulty in having three months of green ears in their most juicy and appetizing condition, contributing largely to the supply of the table during the hot months, when succulent food is so desirable. After trying several varieties of early sweet corn, we have settled upon the

two plantings of this sort, say the fifteenth and twenty-fifth of May. This should be supplemented by two plantings of "Crosby's Early" or some other medium sort, say the twenty-fifth of May and the fifth of June, which will be ready for the last three weeks of August. This should be followed by two plantings of "Stowell's Evergreen," on the fifth and fifteenth of June, and these by two later plantings of the "Marblehead" on the twenty-fifth of June and fifth of July. The "Stowell's Evergreen" is a very large and juicy variety, continuing in the milk longer than any other variety, and is second to none in quality. We have had it almost from its first introduction, nearly thirty years ago, and consider it indispensable in any garden that raises a family supply of vegetables. With three varieties of sweet corn we have been able to provide a daily and bountiful supply of this toothsome esculent for about three months in the year, occasionally running into November, in a location on the sea shore. A quarter acre of land cannot be put to a more profitable use than in growing this substantial and tempting article of food. Almost every one likes it on first acquaintance and the appetite grows by what it feeds upon. It is not only inviting in the simplest forms, in which it is served, roasting, and boiling, but admits of a great variety of preparations, fritters, puddings, etc. It is an indispensable element in that aboriginal dish succotash, which has survived the changes of two hundred and fifty years. Get the ground ready, buy the seed, and make sure of ninety days of sweet corn for the next season.

In an orchard where there are many trees of one kind, they are known by their position, which should be properly recorded. Where there is a collection of several varieties, or where several kinds, by way of trial, have been grafted into one tree, la-

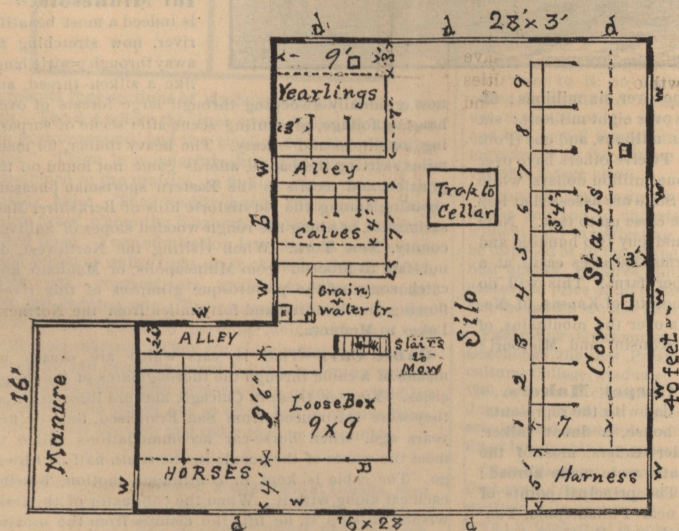


Fig. 8.—FEEDING FLOOR OF A REMODELLED BARN.

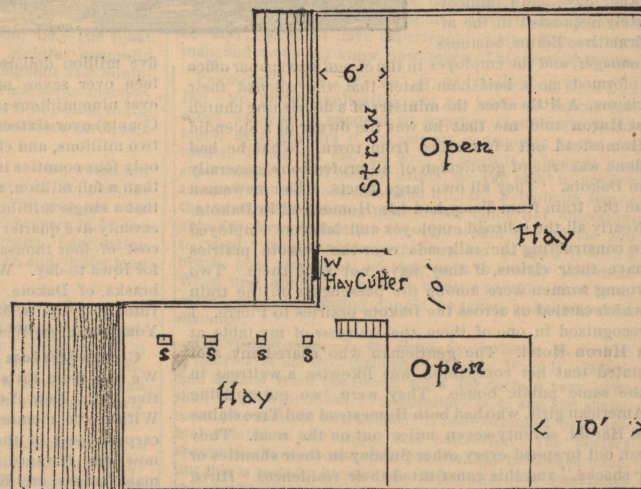


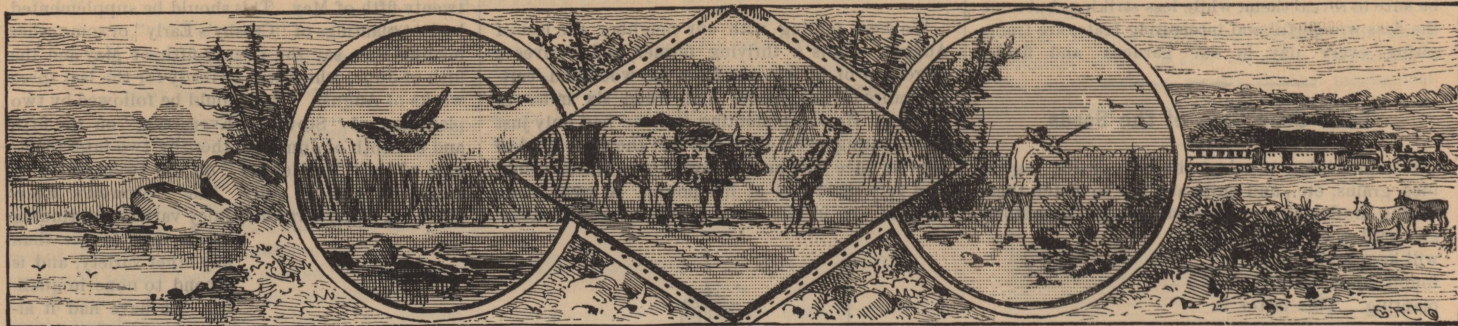
Fig. 9.—HAY FLOOR OF A REMODELLED BARN.

cumbers, laid upon the shed roof to ripen are apt to be left until rotten and frozen. The tomatoes need to be washed out, and the seed spread upon papers or plates to dry in the sun, or by the fire. The saving, drying, labeling, and dating the best seed the land will produce is essential to thrift upon the farm and in the garden. Some seeds are better for keeping, specially those of melons, squashes, and cucumbers. Those that are useless should be carefully burned. Sort the seed box every year. Carefully label and date every package.

"Marblehead Early," as the most desirable sort for early planting. It is a week in advance of the "Minnesota" and the "Narragansett," both excellent varieties, and a great improvement upon the older sorts. This has been tested over a wide extent of territory, and the testimony as to its excellence is quite uniform. We planted the "Marblehead" about the middle of May, and good roasting ears were ready the twentieth of July, furnishing an abundant supply for the family for nearly four weeks. For a good succession we should make

belts become necessary. Before winter sets in, the labels should be looked to, and all that are not perfectly legible should be replaced. There is no better general label than sheet zinc. Cut this in long, tapering, wedge-shaped pieces, about six inches long, and an inch across the larger end. The name of the variety is to be written near the large end with a common lead-pencil, making the letters very distinct. The slender portion is to be loosely coiled around a twig. The black-lead of the pencil completely protects the zinc surface under it.





## Editorial Notes on the Road.

**Springing Up Like Magic.**—Recently we read the story going the rounds to the effect that two weeks after the first lumber arrived in LaBeau, Dakota, there were six stores, five saloons, a newspaper office, a bank, a hotel, and a Presbyterian church in town. What was written in jest, however, applies to a limited extent to many of the villages which are now springing up like magic through Dakota. Year after year the writer has made repeated trips through the Western States and Territories, but he has never before seen anything like the "rush" which Southern Dakota is now experiencing. It almost takes one's breath away. Think, for example, of a place like Blunt, where eight months ago not a single building was to be seen, now having in a thriving village, a handsome opera house, which accommodates six or seven hundred people. Great is the vim and enterprise of the American people, verily. We hope these towns and villages, built with such wonderful rapidity, have come to stay, that no fierce winters or scorching summers will drive them out.

**Land Fever.**—It is fully as bad as the oil fever or a gold craze. It attacks all ages and all sexes. The man or woman in Southern Dakota who to-day does not possess a land claim of some kind, is the exception. "I suppose you have a Homestead or Tree claim," I said, addressing one of the two workmen in a barber shop at Huron, Dakota, the other day; both immediately responded in the affirmative. Editor, business manager, and the employes in the *Signal* newspaper office informed me a half hour later that they all had their claims. A little after, the minister of a flourishing church at Huron told me that he was the owner of a splendid Homestead but a few miles from town. What he had done was true of gentlemen of all professions generally in Dakota. They all own large tracts. The newsman on the train from Tracy had his Homestead in Dakota. Nearly all the railroad employes and laborers employed in constructing the railroads over the Dakota prairies have their claims, if they have not sold them. Two young women were among the passengers on the train which carried us across the Dakota prairies to Pierre. I recognized in one of them the waitress of my table at a Huron Hotel. The gentleman who shared my seat stated that her companion was likewise a waitress in the same public house. They were two enterprising American girls, who had both Homestead and Tree claims at Harold, seventy-seven miles out on the road. They ran out to spend every other Sunday in their shanties or "shacks," and this constituted their residences. Hired men work the claims for them, and they were able to earn handsome wages in the Huron Hotel, nearly eighty miles away. The fertile lands comprising all these various claims belonged to the U. S. Government only a little time ago. They cost their owners next to nothing, and are now held at prices ranging from six to ten dollars an acre. What has been done in Southern Dakota can still be done in Central Dakota, and the readers of the *American Agriculturist*, who would avail themselves of the opportunities presented, must move quickly. We urge them to do so, inasmuch as we desire them to share in the great land division of the General Government.

**Wonderful Growth of Iowa.**—It seems but as yesterday, when, on one of our trips to study up Western farming for the *American Agriculturist*, we crossed the Mississippi on its first bridge, just finished, at Rock

Island, and followed the new railroad to its then ending at Iowa City. Since then our Editors have followed every completed section of this and the numerous other railroads stretching away across the State, and far beyond, and have witnessed the transformation of the wild prairie into magnificent farms, unsurpassed in the world. In population Iowa already stands tenth, having a census population of 1,624,615, which is now materially increased. But what strikes us most forcibly now is a glance at the assessed property valuation, recently returned to the State Auditor, for 1883, viz., four hundred and forty million dollars (\$440,618,330!) This assessed valuation is, of course, far below the actual cash value to-day. Think of this immense amount of real wealth where there was an almost trackless prairie when many of our present readers began to take this Journal. Iowa is divided into just one hundred counties save one. (Some larger county ought to be divided to complete the round hundred.) The average assessed property of these counties is a little over four million, four hundred and fifty-one thousand dollars each. Seventy-five counties exceed three million dollars each; thirty-eight have over



five million dollars; twenty-one over six millions; fifteen over seven millions; ten over eight millions; six over nine millions; four over ten millions, and one (Polk County) over sixteen millions. Twelve others have over two millions, and eleven over one million dollars, while only four counties in the whole State are assessed at less than a full million, and these are close up to that. Note that a single million dollars would buy two hundred and seventy-five quarter section farms (160 acres each) at a cost of four thousand dollars per farm! This will do for Iowa to-day. What of Minnesota, of Kansas, of Nebraska, of Dakota, of California over the mountains, of Illinois, Indiana, Michigan, Wisconsin, and Missouri? Young man, go West!

**Competition among Carpet Makers.**—We rode from Pittsburg all one day with the representative of a New York carpet house, a fluent talker. Within the memory of our older readers, most of the carpets used in the United States were made abroad; now very few are imported. The principal points of manufacture are Kensington, near Philadelphia, Yonkers and Amsterdam, New York, and Hartford, Conn. The carpets are made here largely from foreign wools, the bulk of which comes from Turkey and Australia. The American purchasers procure this wool at Liver-

pool, England, to which point it is shipped from European ports; and when the European and English buyers come in competition at Liverpool, very lively times are often experienced, not unlike those which sometimes occur during a wheat or lard corner in Chicago. Several plans have been projected for making carpets at the West, notably at Pullman, near Chicago, but they have been abandoned, under the belief that carpets cannot be manufactured as cheaply as at the East, where the raw material is at hand, and skilled labor cheaper than at the West. Until quite recently, the Eastern jobbers, and houses which dispose of the product of the Eastern mills, did not send many representatives through the West, and when they did go, they did not start until toward autumn. Now the competition is so strong that the travellers or agents for these Eastern houses leave for the West as early as June to sell to the Western retail dealers for the autumn trade. They complain that this is far too early, earlier than the customers either wish to buy or will buy. But the spirit of competition is so strong, the Eastern employers are bound to have them on the road,

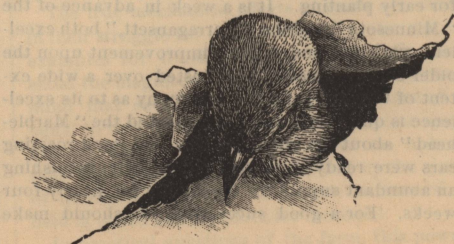
whether they sell goods or not. The whole West is overrun, so to speak, with representatives of Eastern houses, which, together with those of the Western business firms, make a small army of travellers. The writer has met them, during previous trips, as far West as the Territories, when they often comprised the great majority of the passengers on a train of cars.

**On the "Beautiful Minnesota."**—It is indeed a most beautiful river, now stretching far away through prairie lands like a silken thread, and

now gradually sweeping through large forests of overhanging foliage, presenting scene after scene of surpassing loveliness and beauty. The heavy timber, for many miles skirting the banks, affords game not found on the prairies, and recalls to the Eastern sportsman pheasant shooting among the old historic hills of Berkshire, Massachusetts, or along the rough-wooded slopes of Sullivan county, New York. When visiting the Northwest, do not fail to proceed from Minneapolis, or Mankato, and catch some of the picturesque glimpses of this river, flowing four hundred and forty miles from the Northern Lakes to Mendota.

**Cable Cars.**—That is, cars which are drawn by means of a cable through the thoroughfares of the large cities. You see these in Chicago, and are informed that they were introduced from San Francisco, four or five years ago, when horse-car accommodations failed to meet the wants of the people in the south half of Chicago. The cable is kept in continuous motion, bearing each car along with it. When the conductor of the train wishes to stop it, he lifts the clamps from the moving chain, or cable, these clamps being arranged under each car. There are now twenty miles of this cable in Chicago doing the work of two thousand horses. Three hundred men are employed, at a salary of two dollars and fifty cents a day, in manufacturing these cable cars, of which one is turned out every other day. Doubtless these cable cars will soon be introduced in Philadelphia and Boston, and perhaps in New York, if the experiments now being made on the Brooklyn Bridge are successful. So it is that the East learns from the West. Every humanitarian will welcome the introduction of these cable cars and all other devices which tend to lessen the wear and tear on horse-flesh.

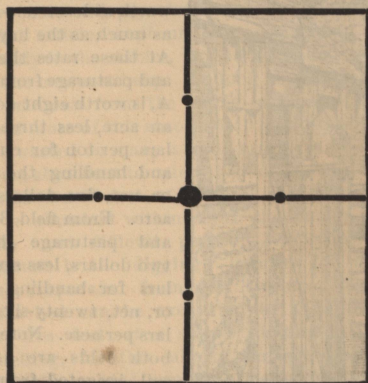
**A Palace King.**—It will well repay you a visit to Pullman, near Chicago, a beautiful city, built by Mr.





Pullman, of palace-car fame. A few years ago he was a poor mechanic; now his daily income is among the thousands. He has colossal car-shops at Pullman, Philadelphia, Detroit, and Troy, and one of his assistants informs us that still another big manufactory is to be erected at Washington. Mr. Pullman exercises a superintending care over all the different establishments. Last year, Robert Caird, a son of the noted Scotch shipbuilder, came over to this country to examine his investments in Pullman stock and in a Mexican railway. Mr. Pullman was so pleased with him in an interview, that he persuaded Mr. Caird, though only thirty years old, to remain and take charge of the shops at Pullman. Caird has shown that he is a wonderful manager, inasmuch as he is now, with the same force of men, turning out two and one-half cars a day, when before only two a week were constructed. He has sent for his family to come over to this country and reside permanently. Pullman City numbers 1,500 houses, built after modern designs, and mostly brick. Some new patterns of cars are now being made with changeable partitions. Perhaps the most elegant car yet constructed was recently completed for Mr. Villard, of the Northern Pacific Road. While the Pullman cars are very comfortable for travellers, the scale of charges should be regulated, if necessary, by legislation, so as not to be excessive. As a general thing, the charges now are excessive on most routes.

**Surveying Public Lands.**—So great has been the emigration to the new Territories, that the Government at times has found difficulty in surveying land fast enough. There are now, for example, whole counties in Dakota yet to be surveyed and laid out. All this work is under the general charge of the Surveyor General of the Government. The work is generally given out by contract. It now costs about eight hundred dollars to survey a township and lay it out in sections of six hundred and forty acres each. Stones, wooden posts, or mounds, as the case may be, are employed to designate the Section Divisions, together with four "Proving Holes." For example, the cut



represents four sections of six hundred and forty acres each. The dot where the lines cross indicates the section post or mound, and the smaller dots the "proving holes." There is wonderful skill displayed by those accustomed to the prairies, in finding these mounds and proving holes. They readily detect them in the long prairie grass, where the inexperienced eye and foot fails to find them. Your admiration is excited as your prairie guide drives or walks right up to these sectional marks, which you, yourself, are unable to discover until they are pointed out. The contractors under the Surveyor General generally perform their work in a very satisfactory manner. They are closely watched and the landmarks are carefully saved by the incoming settlers who wish to keep them preserved, in order to avoid the expensive suits which are so often had over farm boundaries in both the new and older regions of country.

**The Nebraska State Fair,** held at Omaha, Sept. 10 to 16, was one of the most successful in the history of the State. In three important departments, namely, stock, farm machinery, and county displays, the exhibits were greatly in advance of any previous fair. Some three hundred cattle, including representatives of several breeds, were in the stalls. Sheep and swine were out in force, and all breeds of draught horses were well represented. Seven counties competed in exhibits of agricultural and horticultural products; Hall, a county situated one hundred and fifty miles west of Omaha, in the Platte Valley, taking the first premium. The attendance was large, though somewhat diminished during two days by rain. This fair was notable for the little interest taken in the races; at no time was the race-track the center of attraction for more than a small fraction of the great crowd present. The eighteen cattle of several fine breeds exhibited by the State Agricultural College took fifteen premiums, eleven of them first, and four second premiums.

## Chat with Readers.

**BIRD'S-NEST FUNGUS.**—*I. A. A.*—The curious plant found in your berry plantations is, as you suppose, a fungus. It is the "Bird's-nest" Fungus, figured on page 533.

**PERCHERON MARES.**—*R. R. Teller*, North Park, Colorado.—You should write to M. W. Dunham, Wayne, Du Page County, Illinois, for information regarding half-breed Percheron mares.

**CONCRETE HOUSES.**—*Mr. John Wood*, Raxton Falls, Quebec.—You will find a long and fully illustrated article on "Concrete Houses and other Buildings," in the *American Agriculturist* for February, 1881.

**PREMIUM ARTICLES.**—*L. Francis*, Minneapolis, Minn.—All the articles offered in our Premium List are specially manufactured by us, or are specially selected by us. We intend to offer nothing but the very best, in every case.

**LUCERNE.**—*T. Cartes*, Steuben Co., N. Y.—You can find the seed at any of the principal seed stores. It is usually given in the catalogues under the name of Lucerne. Alfalfa is a Spanish name, in general use in California, for Lucerne.

**PEACHES FOR PLUM STOCK.**—*I. A. Armstrong*, Monroe Co., N. Y.—Nothing is gained by using the peach as a stock for the plum. The reverse, working the peach upon the plum, is thought to be useful, if the trees are to be planted on stiff clay soils.

**SPORTSMAN'S GAZETTEER.**—*Sportsman*, New Orleans, La.—Mr. Hallock himself revised the "Sportsman's Gazetteer," which is the only book of the kind in the United States. He spent two or three months in New York last summer, overhauling the volume, and he is now at the West. Address him at St. Paul, Minn.

**MR. PARSONS.**—*J. H.*, Putnam, New York.—Mr. Samuel Parsons, Jr., the able Superintendent of Planting, who is making such a vigorous fight for the trees in Central Park, is a graduate of Yale College, is a son of the eminent Flushing nurseryman, a contributor to the columns of the *American Agriculturist*.

**SHEEP IN THE ORCHARD.**—*J. Raab*, Rockland Co., N. Y.—asks if it would be well to pasture sheep in his orchard, the trees being about twenty years old. While sheep are not so useful in an orchard as swine, it will be safe to pasture them where the trees are not young, provided the heads are not so low that the animals can reach them.

**THE BEAN-WEEVIL.**—*A. B. Frazier*, Litchfield, Conn.—The Bean-weevil sometimes comes from the beans in autumn, but generally it remains within the bean during the winter, and comes out in the perfect state in the spring. It is important that farmers plant only sound beans, and thus endeavor to keep the pest in subjection.

**ANTS ON PEAR TREE.**—*J. R.*, Hartford Co., Conn.—has noticed large black ants upon a large Bartlett pear tree, "which is slowly dying." Some ants are vegetable feeders, while others only visit fruit trees for the sake of the honey-dew they get from the Aphides or plant-lice. It will be well to watch the ants and see if they really do injure the trees.

**JAPAN CLOVER.**—*Thos. Sadler*, Clinton, La.—The plant you refer to is, no doubt, *Lepidexa striata*, generally called Japan Clover. It has spread throughout the Southern States, since the war, in a most remarkable manner, and its general introduction is supposed to be due to the movements of the armies. It is regarded with favor as a valuable forage plant.

**GROWING PEPPERMINT.**—*S. B.*, Rye, N. Y.—We would not advise any one to undertake the culture of Peppermint without fully investigating the matter. The crop can only be disposed of in the shape of oil, and to prepare it, of the best quality, requires skill and experience. Speculation causes the price of oil to fluctuate greatly, and in the long run the profits are not large.

**PRESIDENT GREENOUGH.**—*D. M.*, Salem, Mass.—J. C. Greenough, the new President of the Massachusetts Agricultural College, graduated from William College, Mass., in 1860, and was a classmate of Mr. David W. Judd, of this Journal. President Greenough was a most thorough scholar, and possessed traits of character which peculiarly fitted him for his new sphere of usefulness.

**CRAB-GRASS IN LAWNS.**—*J. Tyron*, Baltimore, Md.—Crab-grass (*Panicum sanguinale*) is an annual. In our hot weather, it is customary to leave the clippings upon the lawn; if Crab-grass is present, this aids in the distribution of its seeds. Frequent mowing and sweeping up the clippings will no doubt diminish the nuisance. Seeding, to occupy the ground with useful grasses, will help by crowding out the other.

**PEACH YELLOWS.**—*Several Subscribers.*—Recent investigators claim that the "yellows" in the peach tree is due to a lack of potash in the soil. They advise the application of one to four pounds of muriate of potash, according to the extent of the disease, to each tree. This is to be distributed over the surface as far as the roots extend, and spaded or plowed in. Those who try this, whether successfully or not, will please report results.

**TRANSPLANTING LARGE TREES.**—*E. L. Johnson*, Lake View, Mich.—Trees of considerable size may be transplanted with success either in late autumn or early spring. The work may be done so soon as the leaves are through with their work in autumn. The tops of the trees should be cut back to correspond with the great reduction of the

root system. Trucks are sometimes arranged for carrying a large part of the earth with the transplanted tree.

**CHESS AND WHEAT.**—*J. B. Gillespie*, Johnson Co., Ill. Revives the old question of the change of wheat into chess, and says: "If you have any doubts on this, I think I can verify it by the evidence of as good men as we have in this country." We have doubts, and do not wish the evidence of any men. Send us the plant itself—when we see a plant that is part wheat and part chess, we shall say so. All former specimens have failed to show the change of wheat into chess. It is an impossibility.

**PLEASANT WORDS.**—*Mr. F. S. Reeves*, Wayne Co., N. Y., writes us to this effect: "When I was a boy, a friend induced me to subscribe for the *American Agriculturist*. What I am, and have, I owe largely to your paper. From a very small beginning, I have now a good flock of registered sheep, a herd of good cows, and other stock. Subscribing for the *American Agriculturist* was the starting point."

**FRUIT BY MAIL.**—*J. M.*, Aurora, Ill., and others have sent pears and other fruit by mail for our inspection. Some specimens have never reached us at all; others have come to hand in such a crushed and "leaky" condition, that we wonder they were not thrown out as injurious to mail matter. Those who send fruit by mail should pack it in a box that will stand all the rough usage it is likely to receive. A pasteboard box is rarely safe. Always use one of tin or of wood, and even then envelope the fruit in an abundance of soft paper.

**DEVICE FOR SUCKING COW.**—*Mr. J. W. Johnson*, Cambridge, Ont., sends us a description of a device for preventing cows from sucking themselves. Take two pieces of board two feet long and three inches wide, and bore two inch auger holes through each far enough apart to receive the cow's neck. Place stout pins through the holes, and let them project six inches, with sharpened ends. These pins prick the side of the cow whenever she tries to draw her own milk. After wearing this device for a few weeks the habit will be given up.

**FUNGI.**—*H. C.*, Lodi, N. J.—A recent "Gardener's Chronicle" gives the announcement of the annual meetings of four different societies devoted to the study of the fungi. These meetings last for three or four days at some favorable locality. On one of the days is a "foray," on which the members collect specimens. This is followed by a fungus banquet, at which the various edible species are served in various forms. Such societies might do much good work in this country, in extending a knowledge of our edible fungi, of which we have many delicious species going to waste, on account of the popular notion that all "toad-stools" are poisonous.

**LEARNING FLORICULTURE.**—*L. H. C.*—Basking Ridge, N. J. That young ladies, without previous experience can take up floriculture and make it profitable, is very improbable. Learning by experience is very expensive. It would be much better for one of the sisters to apprentice herself to a florist, for at least a year. You complain that the books do not give all the needed information. This is not from a desire to conceal anything, but there are many points, such as just the proper condition of the stem in making some cuttings, which are not readily described, but which can be shown in an instant. As with some kinds of cookery, one must have experience. "Mrs. Gilman" is a man, and we do not know how much of his work is fiction.

**PETROLEUM NOT A PAINT.**—*H. H. Hagerman*, Kent Co., Del.—No better application can be made to fences and other wood-work exposed to weather than crude petroleum, as it renders it durable when exposed to the elements. It has not enough body to allow it to be used as a substitute for oil in mixing paints, nor can paint be applied to wood that has been saturated with it. Petroleum leaves the wood of a pleasing light-brown color, not objectionable for farm buildings, etc. We would not advise you to "soak" the boards in petroleum, but to apply it with a brush, coat after coat, so long as it is readily absorbed. When first applied, before the volatile portions have evaporated, every precaution should be taken to keep fire at a distance.

**THUNDERSTONES.**—*T. H. Read*, Colt's Neck, N. J.—The cylindrical stone sent through the Messrs. Ward is a *Belemnite* (named from the Greek word for dart), a very common New Jersey fossil. The specimen is, in size and shape, much like a thick, short cigar. It once belonged to an animal related to the squid and cuttle-fish. The perfect specimens have a broad, thin portion, like cuttle-fish bone, but this is usually broken off. Belemnites are sometimes called "Thunderstones," as there is a popular notion that they are caused by the lightning striking and melting the sand. In some places they are called "Picks," "Petrified Fingers," and "Spectre Candles." Of course the original bone-like character is lost, and it has become petrified or turned into stone.

**PIGEON TREMEX.**—*Mr. C. W. Costellow*, Waterboro, York Co., Me.—The insect you sent us is the Pigeon Tremex (*Tremex Columba*), which was described, with an engraving, in the *American Agriculturist*, January, 1881. This insect bores into the wood of forest and fruit trees, placing an egg in each hole. The grub, hatcht g from the egg, feeds upon the surrounding wood until it changes into the chrysalis, after which the mature insect comes from the tree, and the cycle of changes is complete. When in abundance, the Tremex greatly injures the infested tree. One of its natural enemies is the large Ichneumon Fly, which bores into the tree and deposits its eggs in the body of the Tremex. How the Ichneumon is able to locate the position of the deeply-buried Tremex is a puzzle to every one.



### An English Farm-Stead.

The farm-buildings upon a large estate in England, together form a considerable village. The farmer's house, the cottages for the laborers, the barns, stables, and other out-buildings, together with the stack-yard, form an assemblage with a truly rural aspect. Formerly these buildings were added as the needs of the estate required, and not disposed in any regular order. Of late, architects who have given special study to farm-steadings, are employed, and upon the best managed estates the buildings are erected on a general plan and disposed with a view to the most effective work. In these, the farm is regarded as a manufacturing establishment for the conversion of the grass, grain and root crops into finished products, which may be butter and cheese, or beef, mutton, and pork. The arrangements for storing the crude material, the crops, and employing them in the manufacture, the feeding, are often most complete. These modern farm-steads, while they may be more profitable to the proprietor, have a formal air and are vastly less pleasing to the eye than the older style, built without definite plan, and which may still be seen in all parts of England.

One characteristic of these buildings is, their appropriateness. One is never liable to mistake them for anything other than farm-houses. Square wooden boxes with flat roofs, or those abortions which the village carpenter "decorates" with sawn scroll work, too often seen on farms in this country, are there never met with.

The English farm-house or cottage, old or new, never lacks that most expressive feature, which more than any other conveys the idea of a home—the roof. Whenever a farm building is seen, whether it may be picturesquely covered with thatch, with slate, or as is common in some localities, with shingles painted a dull red, the roof, with its ample, overhanging eaves, is always conspicuous, and suggests that home comfort is to be found beneath it. In the older establishments the out-buildings are nearer the dwellings than we should consider proper—indeed it is not rare that the door most used by the family is entered from the cow-house. There are other points which in a sanitary view might be improved; still, with all their defects these farm-steads well answer their purpose and form a most picturesque feature in English rural life.

### Save all Corn Fodder Everywhere.

The profits of farming, as in other business, is the margin between receipts and expenditures. The receipts are largely augmented by saving wastes; these wastes in farming are enormous in the aggregate. The losses in this direction, that might be saved, would make the business very profitable, where it is now barely paying, or not doing that. Take corn stalks for example. The leaves and a portion of the stems that produce each bushel of corn have a certain amount of nutriment that would support and increase the weight and growth of animals. Yet of our great corn crop, seventeen hundred to two thousand million bushels annually, only a very small part of the fodder is turned to much account. At the very lowest estimate, the

stalks yielding one bushel of corn are on the average worth ten cents for feed, even including the great corn regions—a total of two hundred million dollars. At the South, generally, little value is attached to corn stalks as fodder. At the West, many farmers let their cattle roam in the fields and pick off some leaves, eat a little of the stalk, trample the rest down; they pack the earth so much in trampling on it, that the damage thus done to many fields surpasses the value of the food obtained.

Nearly the whole of a corn stalk, except a very

the last one over the bend in the first, and tuck it under the binder into a loop, into which insert a stalk stub, pushing it into the shock to hold the loop. All this is more quickly done than described.

### Lesson from Two Contrasted Fields.

We recently crossed two fields, separated by a line fence only. They are on a gentle slope at the base of a hill, and both alike in level or inclination, in composition, in receiving the wash from the higher land, and in the water in the dark, springy subsoil. A purchaser, standing at a distance, would let the flip of a copper decide the choice between the two fields, acre for acre. Going on them revealed a very great difference in the present value of these two fields, which we will call A and B.

On field A, the herbage is mainly a coarse, wiry grass, often in tussocks with small barren spaces between. In spots the ground is spongy and miry, except after a severe drouth. When mown, it yields a ton or so of poor hay, worth for feeding hardly half as much as the same weight of timothy. When pastured, the cattle nibble merely the ends of the grass, except in a few of the best portions of the field.

In field B we found a smooth surface, a compact, firm soil, and a luxuriant growth of the best grass, mainly timothy. It averages fully two tons per acre of first quality hay, and abundant, excellent autumn pasturage. Hay here averages about twelve dollars a ton, and the pasturage is worth at least one-third as much as the hay cut. At these rates the hay and pasturage from field A, is worth eight dollars an acre, less three dollars per ton for cutting and handling the hay, or, net, five dollars per acre. From field B, hay and pasturage thirty-two dollars, less six dollars for handling hay, or, net, twenty-six dollars per acre. Note that both fields are a rich soil, irrigated from the high land. Whence this difference of twenty-one dollars per acre, equal to six per cent interest on three hundred and fifty dollars per acre, or ten per cent on two hundred and ten dollars per acre? The

result of careful inquiry turned out as we expected. About twenty-two years ago, the owner of field B, now deceased, though having limited means, bought some tiles, hauling them twenty miles in winter. With these, and in part with stones from the hill, he made a deep drain across the upper side of the field to cut off the deeper springs, but left the surface over them level, to admit irrigating waters to flow down on the field. Then, every twenty to twenty-five feet, he ran drains down the slope, three to four feet deep, their lower ends emptying into a blind ditch. As soon as the drains settled, the field was plowed and harrowed, the tussocks gathered and carried off, a crop of grain put on and well seeded with timothy and clover, the latter not doing much. It has since been plowed two or three times, and sown or planted, and re-seeded to grass. It now looks as if in a sod that would last for a century.

No record of the cost remains, except a memorandum of tiles purchased at thirty to sixty dollars per thousand, the latter for large drains. The owner was not yet forehanded, did much of the work himself at odd spells during two years, the



little of the thin hard outside coating affords nutritious fodder, if it is cut at the proper time, is well cured and judiciously fed. It needs to be cut when not so green as to mould in the shock, but not so ripe as to lose all its succulence and become woody. Experience and observation will generally indicate to every one the proper time of cutting it.

In shocking corn the stalks should be kept straight and parallel. The shocks should be large enough to not have too many stalks exposed to the weather, yet small enough to dry and cure through. For somewhat heavy corn, twelve hills square (one hundred and forty-four hills), is abundant for one shock. A good mode of shocking is this: When the shocks are set nearly perpendicular, draw the tops together very firmly with a rope, and tie temporarily—two men working together. Bind with straw or with stalks. For the latter choose tough, nearly ripe, long, slender stalks. "Bend-break" the top with the thumb and finger every two or three inches. Thrust the butt end into the shock and towards the centre nearly two feet, and carefully bend-break it at the surface to a right angle. Insert a similar top-broken stalk two feet distant; bring the top of the first one firmly around the shock, bend it around the second stalk close to the shock, and then bend the second stalk around and over a third one; and so on, using as many stalks as required by size of shock and length of binders. Bring the end of



old neighbors say, and was laughed at by some as a "book farmer," burying his work and money. We estimate that the work, if done now with hired help, would cost from twenty-five to thirty-three dollars per acre. Call it forty-two dollars, and it would still annually pay fifty per cent on that investment. Both fields pay the same taxes per acre.

Why doesn't the owner of field A treat his land in the same way? He tells us "he can't afford it; has no money to spare, is poor" (and will continue to be). If he borrowed the money, the increase of crop would in two or three years repay it. If he sold half his land to the owner of B, who would like to buy it, and put the proceeds on the rest, he would do "farming that pays."

### Digging Muck and Peat.

A dry fall often furnishes the best time in the whole circle of the year for procuring the needed supply of muck or peat for absorbents in the sty and stable. The use of this article is on the increase among those farmers who have faithfully tried it, and are seeking to make the most of home resources of fertilizers. Some who have used muck only in the raw state, have probably abandoned it, but this does not impeach its value. All that is claimed for it, in "Dana's Muck Manual," published several years ago, has been proved substantially correct, by the practice of thousands of our most intelligent cultivators, in all parts of the land. There is considerable difference in its value, depending somewhat upon the vegetable growth of which it is mainly composed, but almost any of it, if exposed to the atmosphere a year before use, will pay abundantly for digging. This dried article, kept under cover, should be constantly in the stables, in the sties and sinks, and in the compost heap. So long as there is the smell of ammonia from the stable or manure heap, you need more of this absorbent. Hundreds of dollars are wasted on many a farm, every year, for want of some absorbent to catch this volatile and most valuable constituent of manure. In some sections it is abundant within short distance of the barn. The most difficult part of supplying this absorbent is the digging. In a dry fall the water has evaporated from the swamps, so that the peat bed can be excavated to a depth of four or five feet at a single digging. Oftentimes ditching, for the sake of surface draining, will give the needed supply of absorbents. It will prove a safe investment to hire extra labor for the enlargement of the muck bank. It helps right where our farming is weakest—in the manufacture of fertilizers. It is a good article not only for compost with stable manure, but to mix with other fertilizers, as butcher's offal, night soil, kainite, ashes, bone dust, fish, rock weed, kelp and other marine products. Dig the muck now and have it ready.

### Legislation against Wild Carrots.

Connecticut has a stringent statute against suffering wild carrots to grow along the highways running through farms, and we hear with great satisfaction that some transgressors in this matter have been prosecuted this year, for tolerating the nuisance. What is the use of having laws against any nuisance unless they are enforced? The object of the law is to eradicate this pestilential weed, one of the worst the farmer has to contend with, and to protect the careful husbandman who keeps his own fields clear of the pest. He needs protection. His careless neighbor may put him to large expense and damage his hay crop, and increase the cost of every hoed crop, simply by neglect. If he leaves the carrot to mature its seeds, the dried umbels are carried away by the winds, thus spreading the pest. The water along the road side washes the seeds through the culvert, mixed with road dust, into adjacent fields. The grass in the highway belongs to the adjacent land holder, and the law very properly holds him responsible for what he grows with his grass. The careless farmer may not freely damage his neighbor.

### A Convenient Corn Crib and Granary.

Herewith is represented a plan of a Corn-crib and Granary twenty by thirty feet on the ground,

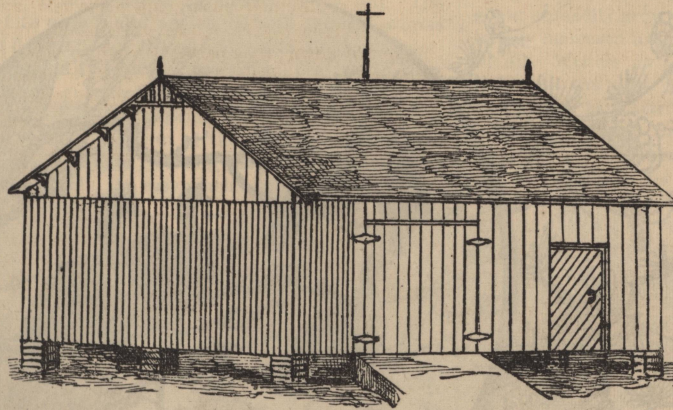


Fig. 1.—THE EXTERIOR OF CORN CRIB AND GRANARY.

with ten feet posts. The corn-crib part is fourteen by twenty feet, with a drive-way through the middle, eight feet wide. The corn-crib is five feet wide below and six feet at the top, eight and a half feet from the floor, and will hold about six hundred and thirty-four bushels of corn. The long side-box upon the floor is twelve inches wide and very convenient for removing corn. There is room over the drive-way and granary for storing about one thousand bushels of corn. Figure 3 shows the arrangement for taking the corn out of the crib; figure 4 is a cross-section of the same.

The granary is sixteen by twenty feet; the inside is boarded up with planed and matched maple

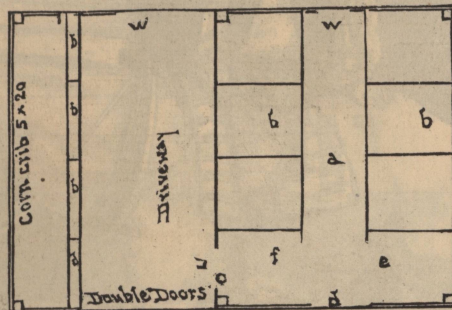
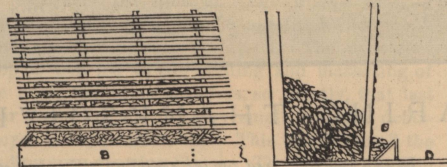


Fig. 2.—INTERIOR OF THE GRANARY.

boards. It has six bins five by six feet (five feet high in front and six feet in the rear), which will hold about seven hundred and ninety-two bushels of grain; or one hundred and thirty-two bushels in each bin. The bins are made of maple boards, planed and matched. The alley, *a*, is three and a half feet wide and runs to the back part of the granary. There is room in front from *e* to *f*, five feet wide, for the fanning mill, platform scale, bag holder and truck, grain measures, bags, scoops, etc. The floor of the granary is of one



Figs. 3 and 4.—VIEWS OF THE CORN BINS.

and a quarter inch maple planks, planed and matched. The floor of the corn-crib is of one and a quarter inch red oak planks, unplanned and matched. The door at *i* is convenient when carrying the corn to the granary as it is shelled.

**SELECTING AND FATTENING CATTLE.**—In selecting cattle for fattening, choose those which "handle" well. A soft skin, and silky coat, not coarse or wiry, are the good indications of

fleshing easily. Consider the "build" of the animal, as whether the flesh put on will be where the choicest cuts are obtained. This implies a full round rump, thick sirloin and broad shoulder. For

feed, use at this time of year, turnips, pumpkins, beets and the like, in small quantities if available. Though not particularly fattening of themselves, they put the system in good condition for a course of fattening rations, which is highly desirable. A good daily ration to begin on, for each one thousand pounds weight is: hay thirty pounds; roots fifty pounds; meal ten pounds; but this must necessarily be somewhat variable. Feed regularly and water freely, at least twice a day.

As a rule it is better to keep fattening stock in the stall most of the time, and as quiet and comfortable as possible, allowing for sufficient exercise. In winter it is important to keep the stables well ventilated. An animal cannot thrive and fatten when these simple precautions are ignored. A properly fattened animal will sell with profit at any time.

### Rats and Mice.

We are often asked the best way of catching these vermin, especially rats, which are more difficult to manage than mice. The best treatment with both is, to keep them out. In building a house, the possibility of their entering should be kept in mind, and the precaution of properly cementing the cellars should be taken. In old houses, where these creatures have made themselves at home and found run-ways for many years, the task is more difficult. Yet here, care is needed to keep them out. With ingenuity and patience all that are in a house may be trapped. When the house is once free of them, it will not remain so long unless precautions are used to prevent rats and mice from entering. They come in through open doors and windows much more frequently than by burrowing. When once within an old house they find abundant hiding places, and often passages from one part of the house to another made by their predecessors. Still much may be done to circumvent them. All visible holes through partitions and doors should be stopped by pieces of tin. Old fruit cans, with the solder melted off answer for the purpose. The tin may be cut with a pair of old shears and tacked over the holes, first punching with an awl places for the tacks. Where there is a hole through plastering, or between stories of the cellar wall, these may be effectually stopped with Plaster of Paris mixed with coarsely broken glass. They can not work through this. It is well to make a study of the ways of these animals and follow them up. Of course, after interfering with their runs and holes as much as possible, it is desirable to catch those that are in the house, as poisoning is not advisable in the dwelling. Even the most wily and cunning old rat may be caught, if his suspicions are overcome by food in a trap arranged not to spring. After he has learned to feed in the trap regularly, it may be set. When a rat has been caught, the trap should be soaked in water for some days, else others will avoid it. Trapping rats requires tact.

In a large orchard there will be many barrels of fruit which will not sell for enough to pay the freight, and its profitable disposal is often a problem. Some may be fed out, and a portion may be used for drying. An orchardist of our acquaintance finds converting them into vinegar, the most profitable use to make of all poor apples. They should be pressed before there is decay among them.





## NEARING THANKSGIVING.

*Drawn and Engraved for the American Agriculturist.*

Some hae meat that canna eat,  
 And some would eat that want it;  
 But we hae meat, and we can eat,  
 Sae let the Lord be thankit.

BURNS.

Come, ye thankful people, come,  
 Raise the song of Harvest-Home!  
 All is safely gathered in,  
 Ere the winter-storms begin.

DEAN ALFORD.



### Woodchuck Oil for Leather.

From previous reports, and especially from our own recent observations and experiments, we have come to set a high value upon the oil of the common woodchuck or "ground-hog" for leather. This oil, while having considerable body, seems to have some of the non-drying quality of glycerine, but, unlike it, is not removed by water. An old stiff harness saturated with this oil early in July last, after going through the hot weather, still remains soft and pliable. The lines were even too greasy to handle well until after a month's drying. An old pair of heavy boots, so stiff as to hurt the feet unbearably, received a good coating of this oil August 1st, on the bottoms and two inches high all around the sides, and they soon became almost as soft and easy to the feet as moccasins. By the way, oiling the soles of boots and shoes renders them more elastic, easier to the feet, and less liable to break and crack and wear out on rough ground and stones, and therefore more durable; and at the same time the oil excludes water and dampness. It is highly esteemed by some hunters for guns. A carpenter commends it for tools.

Woodchucks are common in many hilly parts of almost the entire country, and it is easy for farmers to kill a few for their oil, as well as to get rid of them, for they are a nuisance. Eight or ten of them are said to consume as much clover as a cow. New Hampshire farmers will have a triple reason for trapping or shooting them, viz., the bounty, their oil, and saving their support. They make severe havoc in apple orchards, among green corn, pumpkins, and several field and garden crops, to say nothing of their excavations in the fields. We knew of a horse severely lamed by stepping into one of their holes, and have heard of several others.

If dealers in harness will keep the oil on sale, it will bring a good price whenever its qualities become known; while the opening of a market for the oil would stimulate and hasten the destruction of the pests. We have taken fully two quarts of oil from a full grown, fat fourteen-pound "chuck."

### Late Fall Plowing for Wire-Worms.

The term Wire-worm properly belongs to the long, slender, and uncommonly hard larvæ of the *Elaters*—the spring, or click-beetles. These, when placed on their backs, suddenly spring several inches into the air, with a clicking sound. The largest of these beetles (*Elator oculatus*) is about two inches in length, and has two large, round spots upon the upper side of the body, which are often mistaken for eyes. Its surface is covered with a whitish powder. It is frequently found on the trunks and branches of old apple-trees during June and July, and from its larger size, peculiar "eye-spots," and strange manner of springing, it is often sent us for a name. The larva is about two and a half inches long, has very strong jaws, and burrows in the decaying wood of old apple-trees. There are several other smaller species of spring beetles, some of them conspicuous only by their injury to cultivated plants. Those wire-worms which live in the soil and feed upon young roots and stems, are the most destructive. So far as their history is known they live from three to four years. Their injury to the potato, though perhaps no greater than to some other crops, is often ruinous. Indian corn and the grasses sometimes suffer greatly. It is not easily reached with any poison, and the leading remedy is frequent plowing. Wire-worms are generally confounded with the cut-worms, and in destructiveness may be considered the same. The mature state of the cut-worm being a moth, it is easily distinguished from the "click," or spring beetles. Another group of worms is also often spoken of as cut-worms, but the members are myriapods, with many ring-like divisions to the long bodies, each of which is provided with two pairs of legs. These, sometimes called the thousand-legged worms, are of a dark-brown color, and when disturbed coil into a ring.

They do not pass from one state to another, like ordinary insects. Some of these false wire-worms feed upon the roots of plants, and do much damage. They may be caught by placing slices of potato, or turnip, upon the surface of the soil. The white grub is also associated with the wire-worms in its manner of living, and needs the same treatment. All of these subterranean pests have their natural enemies, among the chief of which are birds. Late fall plowing is doubly beneficial, as it turns the worms out of their winter quarters, and exposes them to freezing weather, and also brings them within the easy reach of insect-eating birds.

### Bracing End Posts.

Mr. H. H. Hastings, Corning, Iowa, sends us his method of bracing the end posts of a wire fence in wet land. The post-hole is dug three feet deep, eighteen inches wide and three feet long. On the

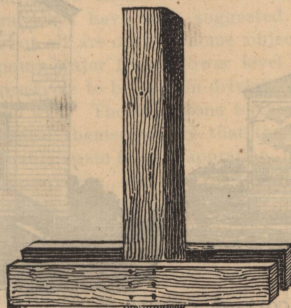


Fig. 1.

lower end of the post nail two stout strips three feet long and six inches wide, as shown in figure 1. Set this post in the long hole (figure 2) and lay short pieces of board upon the cross strips. On each end of the "platform" thus made, place a fifty-

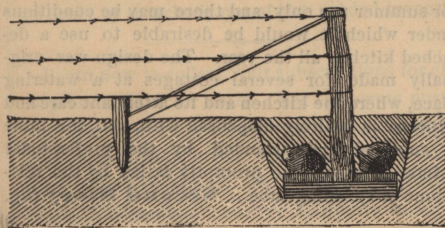


Fig. 2.

pound boulder or other heavy weight. Fill in with earth well tramped, and brace from the top, as shown in figure 2. This is a good method of setting the lowest posts in a fence over very uneven ground, as they will not lift in stretching the wire.

### Scarcity of Hogs—The Decrease.

In our market notes and elsewhere, we have frequently referred to the lack of swine to consume the large corn crop of 1882, and of the importance of increasing the number. This known scarcity lead the speculators to undertake the corner in hog products that recently collapsed. The poor corn crop of 1881 led to the feeding and marketing of the hogs, including breeders, so greatly, that last year found the number very small, and the deficiency is not yet made up. This applies to all the leading corn growing States. The banner State in this industry is Iowa, which in 1880 returned over six million (6,034,316) swine, about twenty per cent more than Illinois, the next highest. These figures included all ages. The present number in Iowa is officially reported at less than two million (1,965,000) of hogs six months old and upward, which is nearly nine per cent below the number of a year ago. This indicates a decrease in five leading swine growing States of Iowa, Illinois, Missouri, Indiana and Ohio, of nearly seven hundred thousand hogs of six months old and upwards, as compared with the same date last year, or nearly one million four hundred thousand for the whole country.

### Quinces and How to Use Them.

Every part of the quince is very useful. They bring three to four times the price of apples, while about as readily grown, and their culture should be largely increased until they come within the reach of all. Writers as far back as the old Roman Columela, the most celebrated agricultural writer of his time, have attributed to the quince various health giving and medicinal qualities, partly at least fanciful, but there is no doubt as to the usefulness of quinces for food, and several other purposes. Scalding and soaking the dried fruit in water makes a good substitute for tamarind water—a very acceptable, cooling acid drink.

**BANDOLINE.**—The seeds covered with forty to fifty times their bulk of water and gently warmed, soon produce a thick mucilage used by perfumers and hair dressers. Many ladies prepare this for themselves, to keep the hair in place. It needs a little alcohol, or strong alcoholic liquor may be added, to keep it from souring, and it may be perfumed to one's taste. In many parts of the country this is called "bandoline."

**QUINCE PRESERVES.**—Pare, core and weigh; first stew soft in water and then add as many pounds of sugar as there were of the uncooked fruit, and simply scald through. Quinces, currants, grapes, and other fruits to be jellied should not have sugar added until the chief cooking is done. (Lack of knowing this, causes many failures to get good jellies and preserves, by inexperienced house-keepers). To prevent mould, cover the top of the jars of preserves or jellies with writing paper dipped in alcohol. (A house-keeper says: "Cover with a thin film of melted lard." In ordinary keeping we should fear rancidity and bad flavor). Keep in a cool dry place. This is a beautiful preserve.

**BOTTLED QUINCE SAUCE.**—Cook the prepared quinces as above; pour off the water and cover the fruit with a syrup of a pound of sugar to a pint of water. Boil up quickly, then take the fruit out carefully, and put it into preserving jars or cans. Pour the syrup over it and close the jars tightly. This gives a clear light-colored fruit which will last for years. The cooking water may be used for stewing more fruit, to which may be added one or two times its bulk of apples, making a nice quince flavored sauce, or "a quince apple butter," by mashing, and stirring while boiling it down to the desired consistency, and sweetening to the taste. This may be used as wanted, for a short season, or it may be preserved in the closed fruit bottles.

**QUINCES WITH APPLES.**—In nearly all forms of quince sauce, apples may be freely added, as they are much cheaper, and the quince flavor is preserved. Many like a sauce with a large proportion of apples better than the pure quince.

**QUINCE MARMALADE.**—Cook the fruit soft, crush to a pulp and add sugar as for preserves; then slowly cook to a thick paste, constantly stirring to prevent sticking or burning. One third sweet apples added, without more sugar, improves the quality for most people.

**QUINCE JELLY** is one of the best. Most house-keepers use the entire fruit, and also the skins and cores from other preparations. It is better to leave out the cores, as the mucilage around the seeds may injure the jelling; but use the parings, as the richest portions are next to the skin. Use any fragments also. It is economical to use double the quantity of apples which are rich in jelly; cook the apples, and then the quinces in the same water and strain out the juice of both fruits. As before hinted, it is important to do all cooking before adding the sugar, and afterwards continue the simmering until the jelly point is reached. The sugar may be added to the strained syrup, bulk for bulk, without weighing. It saves much labor to skim only once before adding the sugar, and not again until the jelly is made and taken from the fire. Let it cool a little before putting into cups or jelly glasses. Preserve from moulding by covering well as above recommended for preserves.



## A Cottage, Costing \$5,000.

BY S. B. REED.

Figures 1 to 8 present designs of a modern cottage, containing eleven rooms, with the usual halls, closets, pantry, bath-room, etc. This dwelling (figures 1 to 4), has a pleasing appearance, suggestive of comfort and cheerfulness. The simplicity

of the library has a bay-window in front and a double window at the side; the space under the stairs provides a direct passage to the dining-room, which is spacious, and is lighted by a cluster of windows occupying nearly one entire end. It has a small china closet, and adjoins the rear entry, or private passage, which is also fitted for the caterer's use. It will be observed that no kitchen is provided for in this plan. A portion of the cel-

are of broken stone and cement, laid in courses, and neatly pointed. All piers are of brick and cement. The chimney is of hard brick. There is a furnace in the cellar, and connected with a side flue of the chimney, with hot-air pipes extending to registers in the principal hall and rooms of the first story. The beams of the first story are brick-filled on the foundations to exclude outside air at the bottom of the main frame. The interior

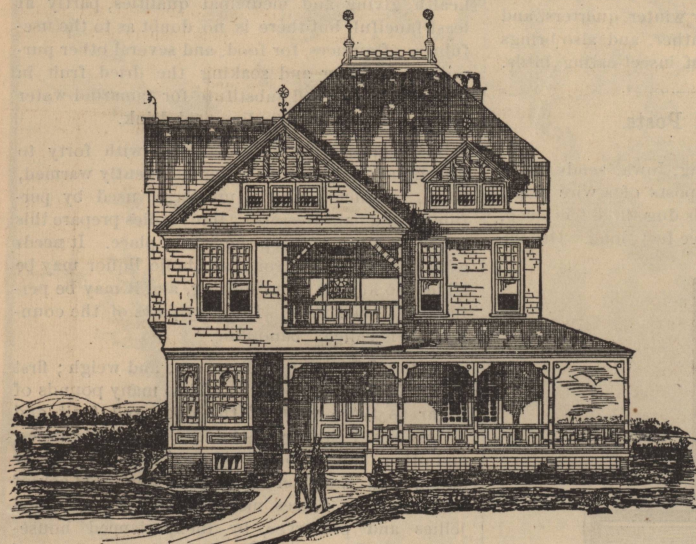


Fig. 1.—FRONT ELEVATION.

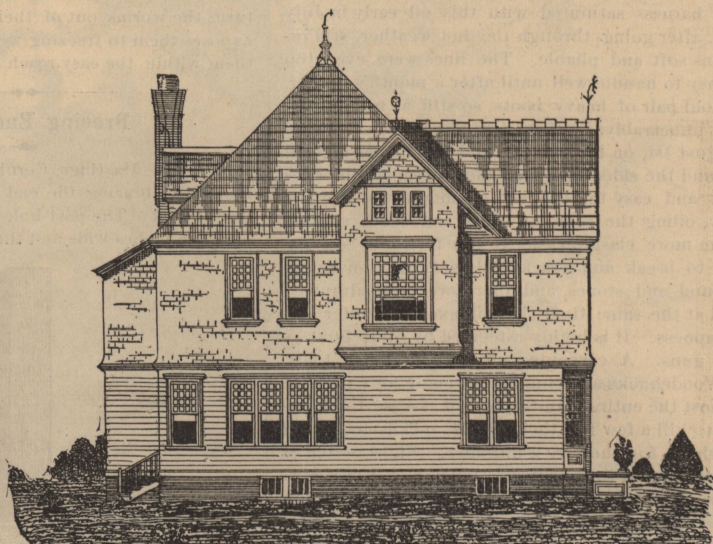


Fig. 2.—LEFT-HAND ELEVATION.

COTTAGE, COSTING \$5,000.

of style and general finish accord with the utilitarian view now happily coming into fashion for all classes of building. Variety is a manifest feature. The outlines of each front, the covering of the different stories, and in most cases the window and door openings, are arranged to be dissimilar in materials and form. Strong and decided contrasts in colors are applied to different parts, and tinted glass of various shades is used for the smaller lights of the sash.....**The Cellar** (fig. 5) extends under the entire main building, has five windows, and inside stairs to the first story. Height of ceiling  $6\frac{1}{2}$  feet.....**First Story** (fig. 6).—The height of ceiling is 10 feet. The principal entrance is from the veranda through double doors to a hall, containing the main stairs, and connecting

lar may be converted into a kitchen, if desired. In the Southern States it has long been the custom to have the kitchen in a detached building, in which are also the servants' rooms. While this has its inconveniences, it allows the house to be kept much cooler, and avoids the odors from cooking. Northern houses often have a detached kitchen, for summer use only, and there may be conditions under which it would be desirable to use a detached kitchen all the year. The design was originally made for several cottages at a watering place, where the kitchen and its attendant care and expense is entirely dispensed with, and the table is supplied and attended by the professional caterer, who may be promptly called by the telephone or speaking-tube.....**Second Story** (fig.

side walls and ceilings are hard finished on two coats of brown mortar and lath. In the main hall and principal rooms are stucco cornices. The frame is of sound, seasoned spruce timber. Studding and rafters are set 16 inches from centers, braced and bridged. The windows have plank frames, and  $1\frac{1}{2}$ -inch sash, glazed and hung complete. The inclosing for the first story is of clear clapboards, and for the second story of cedar shingles, all upon sheathing. The roof is of cedar shingles. The floors in the two principal stories are double, the first of matched hemlock boards, and the second, of tongued and grooved, narrow, clear yellow pine. Attic floors, spruce, tongued and grooved; the outside floors, white pine. The main stairs are ash throughout, those leading to the attic of pine,

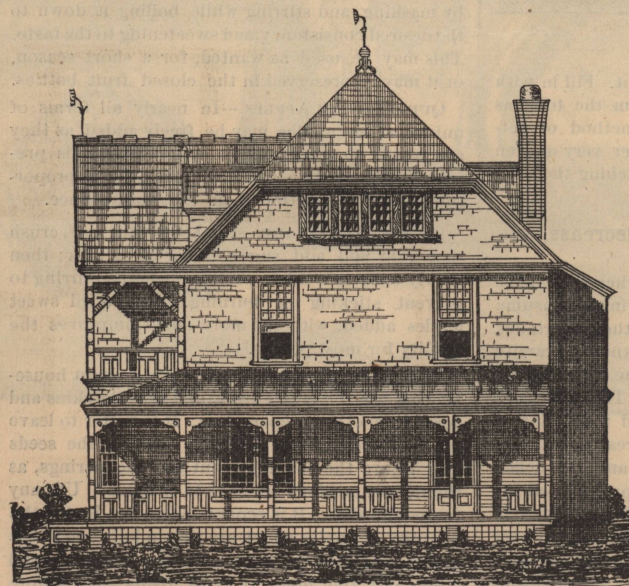


Fig. 3.—RIGHT-HAND ELEVATION.

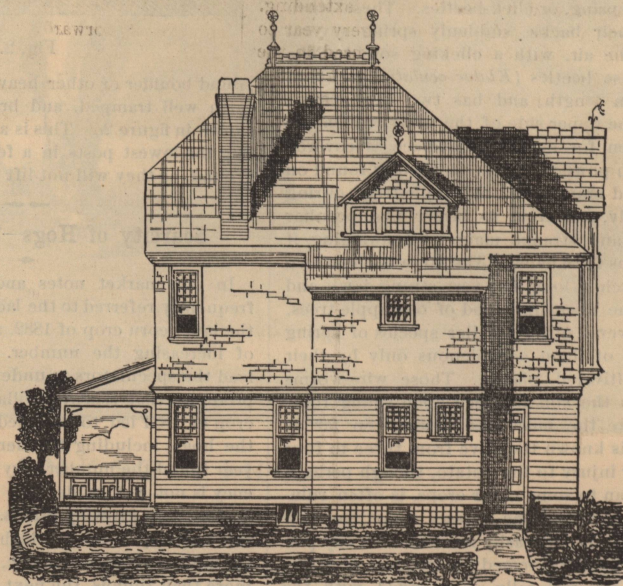


Fig. 4.—REAR ELEVATION.

COTTAGE, COSTING \$5,000.

with the drawing-room, library, and dining rooms. The drawing-room extends the length of right side of the house, with an arch crossing midway. A double window is placed in the front, directly opposite a large open fire-place in the rear, with single windows at each side of the fire-place. The side of the front section has a double window; a single window in the rear portion, extending to the floor, is arranged as an entrance direct to the ve-

7).—The height of ceiling is 9 feet. There are five chambers, large hall space, four closets, and a bath-room on this floor. A large window at the head of the main stairs, enlivened with colored glass, produces a very cheerful effect. An alcove opens from the hall to the front balcony, affording opportunity for out-door airing to this story.....**Attic** (fig. 8).—Provision is made for a hall and three rooms in this story.....**Construction**.—The foundations

boxed in with narrow ceiling. The inside finish is ash and red wood. The doors are paneled and molded, for the first story of red wood, all others of yellow pine. All knobs, roses, and escutcheons are bronze. Gas-pipes are provided for five ceiling lights and two side lights in the first story, for ten side lights in the second story, four side lights in the attic, and two side lights in the cellar. All pipes are concealed from sight except where neces-



sary for attachment of fixtures....**Painting.**—Two coats outside, and wood-finish inside. The mantels in each story are of neat design in wood.

#### Estimate of Materials and Cost.

156 yards Excavation, @ 25c. $\frac{1}{2}$ yard.....	\$39.00
1,600 feet Stone Foundation (complete), @ 15c. $\frac{1}{2}$ ft.....	240.00
4,500 Brick in Chimneys, Piers (complete), @ \$15 $\frac{1}{2}$ M.....	67.50
1 Stone Hearth (complete).....	5.00
1,300 yards Plastering (complete), @ 35c. per yard.....	455.00
405 feet Stucco Work (complete), @ 25c. $\frac{1}{2}$ ft.....	101.25
6 Centers and Corbels (complete), @ \$1 each.....	6.00
135 yards Concrete (complete), @ 25c. $\frac{1}{2}$ yard.....	33.75
15,000 feet Timber, @ \$20 $\frac{1}{2}$ M.....	300.00
350 Sheathing Boards, @ 17c. each.....	59.50

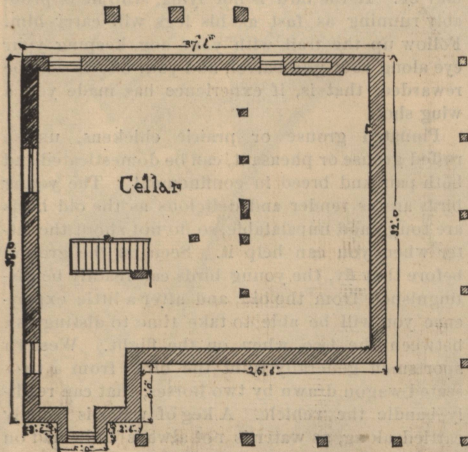


Fig. 5.—FOUNDATION PLAN.

425 Clapboards, @ 16c. each.....	68.00
Felting.....	15.00
180 bunches Shingles, @ \$1.50 per bunch.....	195.00
2,800 feet Hemlock Boards, @ 3c. $\frac{1}{2}$ foot.....	84.00
Cornices, outside (complete).....	110.00
Tin Valleys, Gutters, and Leaders (complete).....	100.00
1,400 feet Flooring (spruce), @ 4c. $\frac{1}{2}$ foot.....	56.00
3,000 feet Flooring (inside), @ 5c. $\frac{1}{2}$ foot.....	150.00
1,500 feet Flooring (outside), @ 4c. $\frac{1}{2}$ foot.....	60.00
Stairs (complete), \$200; Verandas (do.), \$250.....	450.00
48 Windows, full (complete), @ \$12 each.....	576.00
6 Windows, cellar (complete), @ \$6 each.....	36.00
23 Doors (complete), @ \$10 each.....	230.00
6 kegs Nails, @ 4c., \$24; Mantels, \$50.....	74.00
Plumbing, \$200; Gas-pipe, \$50.....	250.00
Furnace, \$200; Painting, \$400.....	600.00
Carting, \$50; Incidentals, \$39.....	189.00
Carpenters' labor (not included above).....	500.00
<b>Total cost, complete.....</b>	<b>\$5,000.00</b>

#### Utilizing the Power of the Wind.

In the West but little use is made of winds except to pump water. For this purpose it is extensively employed, and its use is rapidly extending. Enough wind power goes to waste every year to drive all the machinery which will be used in the State for a century. This is due to the fact that, as yet, wind-power can only be used with profit for work not requiring a uniform, steady motion. All

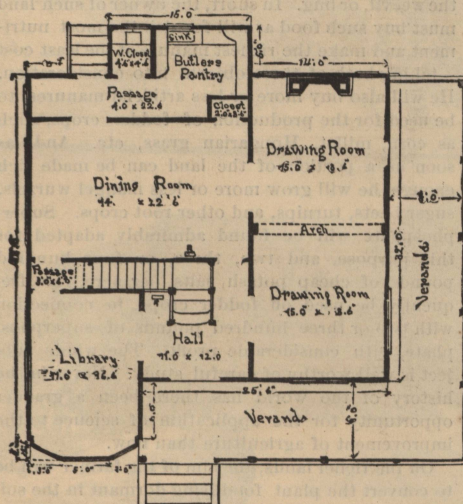


Fig. 6.—PLAN OF FIRST FLOOR.

the wind-mills in use are to some extent self-regulating. The wind is constantly varying in force, and the motion of the mill varies with it, but not to the same extent. Most mills will stop entirely in a heavy storm. In some of the very large wind engines, a regulator is used which approximates to a uniform speed. But even if some one should make a mill so regulated as to run steadily—at the

same speed—with a varying wind, the difficulty would still be but partly overcome. Sometimes just when work is most needed, the wind stops blowing and nothing can be done.

There is also a special difficulty in making very powerful wind-mills strong enough so that they will not be wrecked in some of our storms. Ingenuity has not yet been able to combine strength, means of adjustment to the varying direction of the wind, and the necessary lightness of parts, so as to make these large wind-mills successful.

With the mills now in use, and capable of withstanding any storm not great enough to destroy ordinary buildings, all the minor operations of the farm, such as churning, cutting feed, slicing roots, etc., may be done, provided some cheap method of storing up power shall be discovered. The wind-mill should be so arranged that when not needed for pumping, it may run and store up power, to be used for a few hours at a time when needed.

Several ways have been suggested for storing power, but all are open to some objections. One is, to pump water from a lower level to a higher, into a reservoir to be used in driving machinery in the usual way. The objections to this plan which first suggest themselves are that there would be considerable waste from evaporation, leakage, friction of pumps, etc., and that the machinery needed to utilize the water power would be too costly, it is feared, to allow any such device to come into general use. Another plan suggested is to compress air into a large receptacle and use it to drive the machinery of the wind-mill. This plan is open to the same objections as the preceding.

It is also proposed to store power by raising a weight slowly by a train of wheels, and then take power from this weight in descending. We are not aware that any practicable device for using such a motor has yet been invented. The whole subject is commended to the attention of ingenious mechanics, in the confident assurance that there is a fortune to be made by somebody out of this needed invention.

Begin now to collect your subscriptions for clubs or premiums, or for both. For two cents postage you can now write us for any required information, not already given, regarding the *American Agriculturist* Premiums, etc. We have department heads to immediately answer all questions, and to immediately forward you all the needed circulars, specimen copies, etc., etc., you may require.

#### Is Horse-Racing Necessary at Fairs?

At a large majority of the thousands of agricultural exhibitions held the present year, the speed track—really, the race track—has been a prominent feature. Among the premiums awarded, the largest in amounts have been given to trotting and running horses. Formerly, these trials of speed were merely an incident—a “tail piece” to the general exhibit of agricultural and horticultural products, implements, and modes of culture, and of generally useful domestic animals. Latterly, the tail seems to wag the whole body. Comparatively few of the public-spirited men who get up and manage the fairs, fully approve of this feature; but a large number deem it a necessary evil. The Committee on “Ways and Means” reason that while the body of staid farmers will come for the sake of the real object of such fairs, the “trials of speed” attract a large floating population from towns and cities who care not a fig for agriculture, but whose admission fees supply the sinews of war.

It is already time to begin plans for next year's exhibitions, and while the present season's experiences and observations are fresh in mind, the race-track should be well considered. Shall it be the leading feature, or only an incidental, or shall it be left out? As heretofore, the financial feature will largely govern, especially with men who reckon the value of an exhibition according to its magnitude, rather than by its educating, social, and moral results. That the fairs in many parts of the country

are deteriorating, is certain. Not a few of our best farmers are questioning whether fairs are, on the whole, useful. There is certainly a large class in most communities who are disgusted with the growing influence of the race-tracks, and are unwilling to bring their families under their influence. If all of this class are alienated, will not our fairs soon become little more than an annual race-course?

There are several examples that may well be considered. The Agricultural Society of the Empire State has steadily and persistently set its face

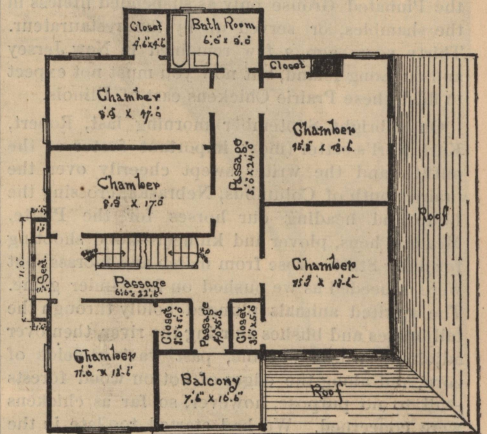


Fig. 7.—PLAN OF SECOND FLOOR.

against the introduction of this feature, and no other society has more prosperously gone forward with grand agricultural exhibitions every year—never in financial straits, but always making a large, useful, instructive, genuine, agricultural show. As another illustration, take the Orange County (N. Y.) Agricultural Society, one of the largest and most prosperous. Not long ago the race-track threatened to get the supremacy, and speed premiums were abolished. Many predicted decline and failure. The results last year and this, show the contrary. There were in the horse department two hundred and thirty-one entries last year, and two hundred and seventy-seven this year, numbering with colts three hundred and thirty-nine animals, including twenty-six stallions, forty-eight teams, one hundred and forty-five single horses, etc. Instead of the race, all the exhibited animals were marshalled in grand cavalcade each afternoon and, preceded by a stirring band of music, marched in classes, follow-

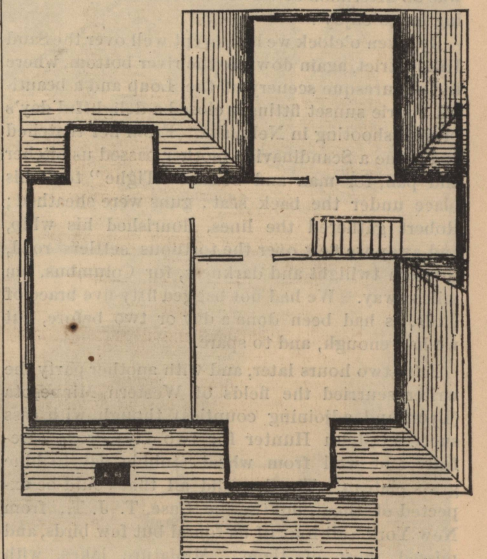


Fig. 8.—PLAN OF ATTIC.

ing each other, two or three times around the track that encircled the chief buildings, and in view of all present. The quiet, earnest attention and study we saw in the faces of ten to fifteen thousand lookers-on were, we are sure, indications of far more practical information carried home, than could have been derived from seeing a few fleet-footed animals dashing past at their utmost speed under the lash of professional jockeys. Racing is not necessary.



## Prairie Chicken Shooting.

DAVID W. JUDD.

The whirr, the gun crack, and the fall! Most breezy, bracing sport, as the birds go up with the wind and down with your number eight shot, affording all the exhilaration and pleasure, without the attendant exertion and weariness of mountain Pheasant shooting in the East! Very many of our readers recognize a familiar scene on the opposite page. The great mass of them, however, know the Pinnated Grouse only as suspended lifeless in the shambles, or served up by the restaurateur. Thirty years ago, a few remained in New Jersey and on Long Island, but now you must not expect to flush these Prairie Chickens east of Illinois.

On a bright September morning last, Robert, Karl, Karl's setter (most important factor of the outfit), and the writer swept cheerily over the prairie south of Columbus, Nebraska, crossing the Loup and heading our horses for the Platte. Meadow hens, plover and killdeer—good shooting for older States—rose from marsh and morass, but were unheeded as we pushed on for gamier game. The spirited animals plunged boldly through the tall brakes and bushes skirting the river, then over adjoining wheat stubble, past waving fields of corn, and along the edges of cotton-wood forests—all to no purpose, however, so far as chickens were concerned. We had started too late in the morning to flush the birds, and with all his beating to and fro, "Tighe" could not raise them. We gave him abundance of water from the cask, sponged his sides and limbs with as much care as if in preparation for a dog show, and then made for the Sand Hills. Here, too, the chickens refused to be found. So at high noon, under the friendly shade of an abandoned tree claim, we unhitched and unharnessed the weary horses, turned them into the blue grass, spread the ample repast which host Clothier had provided, gave "Tighe" a fresh bath from the water cask, and then lay down for two hours' sleep, until later in the day the birds should be more accommodating.

Three o'clock found us on the move, and likewise the birds; a whole covey rose thirty yards from where we had rested. And then on until sunset, what, with whirring of chickens right and left, double shots from wagon and on foot, magnificent working of the dog, marking down single birds, "pulling" a deserted ranche for water—it was an afternoon of varied excitement, worth coming far to enjoy!

By seven o'clock we had swept well over the Sand Hill district, again down to the river bottom, where the picturesque scenery of the Loup and a beautiful prairie sunset fittingly closed a delightful day's prairie shooting in Nebraska. From her thatched sod home a Scandinavian mother passed us pitcher and pail, for man and beast. "Tighe" took his place under the back seat; guns were sheathed; Robert gathered the lines, flourished his whip, and away we flew over the tortuous settlers' road, through twilight and darkness, for Columbus, ten miles away. We had not bagged fifty-five brace of birds, as had been done a day or two before, but we had enough, and to spare.

Fifty-two hours later, and with another party the writer scurried the fields of Western Minnesota (Lyon and adjoining counties), though with less success. Jehu Hunter for two days drove carefully and well from wheat stubble flat to blue grass plateau. The dogs did all that could be expected of them, but Scribe Case, T. J. T., from New York—all four of us found but few birds, and missed most of them. Miniature lakes, with countless canvas-back, teal, and mud duck appeared in rapid succession. Flocks of geese clouded the sky. Cranes, sand and blue, hawks and meadow hens flew from every slough, as if to invite a shot, but the Pinnated Grouse took surprisingly good care of themselves. Swinging round back to Tracy, we proceeded 140 miles into Dakota, to be told that we were too far out for Prairie chickens. They move westerly only with wheat stubble and corn fields. So back to the

Minnesota line we went, where, in the Sioux Valley, eastern reader, you may find these noble birds in sufficient numbers to gratify your most sportive zest. If you have the time and means for a western trip, and relish for bird shooting, endeavor to reach the chicken country—Western Iowa, Western Minnesota, Eastern Dakota, Central Kansas, and Central Nebraska—after the middle of August and before the middle of September. The season continues from August to December, but during the period specified the birds (hatched in June) lie better, fly with much less speed, and are much better eating than later on. A young pinnated grouse, properly broiled soon after killed, is as toothsome and delicious as a young domestic chicken, or woodcock, whereas an old bird is a tough customer for a novice to get, and a tough customer to eat after you have gotten him.

Do not bring dogs with you, unless well broken to pheasant and woodcock, and then only pointers, which require less water on the prairies than do setters. The railroad charges for transporting dogs are considerable, and you can generally find dogs which will answer your purpose in the prairie region. Equip yourself, before starting, in a cheap corduroy suit. Take a number twelve Remington Breech Loader, new pattern, topaction. Have a few brass shells for an emergency, and do not load yourself down with loaded paper shells or cartridges, inasmuch as they can generally be purchased at reasonable figures at almost every Western prairie village or collection of houses where other articles are sold. It is well to include among your traps those necessary for loading shells, for any emergency that may occur. Nothing can be more vexatious than to be caught without loaded shells on good shooting ground, and to be unable to purchase any without driving miles away.

If accustomed to pheasant and quail shooting, you will experience no difficulty in bringing down pinnated grouse. Like quail, they are gregarious, fond of cultivated farms, and particularly of wheat stubble, after the first of September. Like pheasant, pinnated grouse lie still until you are close upon them; they will rise as a covey, or one by one, in which latter case you can bring them down in detail. As they rise they flap their wings and, like the pheasant or partridge, sail away, generally in a straight line from you. During August, and until the middle of September, the grouse flies a comparatively short distance, dropping down in the long grass. Later in the season the single bird will sometimes fly for some miles, when flushed, before alighting. If making a cross shot, aim from two to four feet ahead of your bird, according to the distance. If he is an old grouse, and does not drop, watch him closely; he may be carrying off a handful of number eight shot (use number six shot after October first) to alight, stone dead on the prairie.

The bird rises with a cluck! and a whirr! and after September flies with almost as much rapidity as the pheasant. He is a swift runner, and when your dog has come to a dead point, you may often find him twenty or thirty yards away from the spot where the dog has made his first stand. Be always on the alert, therefore, for your bird, close at hand or at a distance, that is, after your dog has made game. Prairie chickens generally roost close to each other on the ground, rarely on shrubs or trees. They begin to feed at daylight, frequenting the stubble fields after the middle of August. By the middle of the forenoon, say ten o'clock, they have satiated themselves, and repair to corn fields and the long grass, where they remain very still and quiet from this time on until three o'clock. It is difficult for both man and dog to find them then; indeed, during this time they appear to be as successful as the quail in holding their scent. From about the middle of the afternoon on, they again begin to move about for food, and towards evening, after the twentieth of August, you are very liable to find them in the wheat stubble, where they can be readily shot from a wagon. Of course you have to make snap shots at the birds in corn-fields, whereas, on the prairie and in stubble,

you have open sights before you. When a covey is flushed, and alight in the prairie grass, the birds are apt to make off, each one for himself. Then, with good dogs, there is fine sport, as bird after bird is found. When single birds are flushed, flying, as they generally do over one rise of ground, and stopping half way up the next, or swinging entirely around one point, to some plateau beyond—be sure to mark them down by means of some bush or brake. Then do not take your eye from the spot, but walk or drive directly to the place, as the case may be. If the bird is not lying still, he is probably running as fast as his legs will carry him. Follow up the trail with your dog, keeping your eye along your gun barrel, and your efforts will be rewarded, that is, if experience has made you a wing shot.

Pinnated grouse or prairie chickens, unlike ruffed grouse or pheasant, can be domesticated and both pair and breed in confinement. The young birds are as tender and delicious as the old birds are tough and unpalatable, so do not shoot the latter when you can help it. Seen on the ground before they fly, the young birds can readily be distinguished from the old, and after a little experience you will be able to take time to distinguish between the two, when on the flight. Western sportsmen generally hunt the birds from a two-seated wagon drawn by two horses, that can readily handle the vehicle. A keg of water is usually carried along, as water is not always to be had on the prairies. On long trips, three kegs are sometimes taken, two being suspended from the back axle-tree and one from the front. Select a region where you can camp at night by some river or running stream. Supply yourself with provender before starting, if a week or more is to be spent in this prairie pastime. Our artist conveys an idea of picturesque scenes we have witnessed, and the exhilarating pastime afforded us during the present autumn. May the same recreation and pleasure be yours another autumn, gentle reader.

## Science in Farming.

JOSEPH HARRIS.

We have much poor land in the United States, and an immense area of good land. The poor land will be used to grow timber, or be improved by converting more or less of it, gradually, into pasture, and stocking it with sheep and cattle. The main point is, to feed the sheep or cattle with some rich nitrogenous food, such as cotton-seed cake, malt-sprouts, bran, shorts, mill-feed, refuse beans, or bean-meal made from beans injured by the weevil, or bug. In short, the owner of such land must buy such food as will furnish the most nutriment and make the richest manure at the least cost—taking both of these objects into consideration. He will also buy more or less artificial manures, to be used for the production of fodder crops, such as corn, millet, Hungarian grass, etc. And, as soon as a portion of the land can be made rich enough, he will grow more or less mangel wurzels, sugar beets, turnips, and other root crops. Superphosphate will be found admirably adapted for this purpose, and two, three, or four hundred pounds of cheap potash salts, per acre, can frequently be used on fodder crops, in connection with two or three hundred pounds of superphosphate, with considerable profit. The whole subject is well worthy of careful study. Never in the history of the world has there been a grander opportunity for the application of science to the improvement of agriculture than now.

On the richer lands, the aim of the farmer will be to convert the plant food lying dormant in the soil into profitable crops. The main point is good tillage. In many cases weeds now run away with half our crops and all our profits. The weeds which spring up after the grain crops are harvested, are not an unmixed evil. They retain the nitrogen and other plant food, and when turned under make manure for the succeeding crops. But weeds among the growing crops are evil, and only evil. Thorough plowing is the remedy, with drainage where needed.





## PRAIRIE PASTIMES.

*Drawn and Engraved for the American Agriculturist.*



## The Common Hydatid, or Tape Worm.

BY DR. R. W. SEISS.

All the hydatids, no matter what species of animal, wild or domestic, may be their bearer, belong to one species of tape worm, being larval forms of the tape worm (*Tenia echinococcus*) which infests the dog and wolf.—The mature parasite (fig. 1) has a length of from one-sixth to one-third inch; it is composed of four parts, of which the one called the "head" is armed with a pointed beak, around which is a double circle of hooks, usually about thirty-five in number. Immediately behind the beak are situated four prominent sucking disks. All these details are easily studied by means of a powerful hand-magnifier. The last division (called the *proglottis*) comprises half the length of the entire animal. The reproductive portion is situated on this segment below its centre. When any animal swallows a mature *proglottis*, or the ripe eggs of this *tenia*, the walls of the segment and the shells of the ova, of which it contains a large number, are digested, and minute embryos of a spherical shape, being each provided with six hooks, escape. The larval parasites bore their way into the blood vessels, and are carried by the blood current to various organs, but especially to the liver and lungs; here the young hydatid first becomes encysted, that is, surrounded by a sort of sack derived from the tissues of its host. Within this sack is found a thick membrane, called the cuticular layer, surrounding a central granular mass, which in the process of development is yet again surrounded with a delicate membrane. The contained hydatid is but half the diameter of its cyst, or sack.

In about three months, "heads" of future tape worms develop, and rapidly arrive at maturity in the granular membrane, or the nucleus, by a process allied to "budding." Many of the lowest animals reproduce by the growth of "buds" from the surface of their body; these have, more or less, the structure of the parent, and are finally thrown off and set free as perfect individuals; this is reproduction by "budding."

Hydatid bags vary in form according to the animal and the organ containing them, but are usually found as masses, of the size of a hickory nut, embedded in the tissue of an organ, or projecting from its surface, and are filled with tiny bladders. The fluid contained in the bags is of a milky hue, and is heavier than water, having a specific gravity of 1.010; it contains no albumen, but is rich in common salt, and may contain grape sugar.

The "heads" above mentioned, when fully developed (fig. 2), are about one-eighth of an inch in length, and separated by an hour-glass-like constriction into an anterior and posterior portion. Each "head" is provided with a beak (*rostellum*), which is armed with a double crown of hooks. These "heads" need only to be devoured by some animal in order to develop into perfect specimens of the tape worm.

The symptoms of hydatid disease in man or the lower animals are by no means distinctive, resembling those of various other diseases affecting the particular organ attacked. In the liver, the parasite produces enlargements that can often be felt externally; jaundice may be caused by pressure on the liver duct; the diaphragm may be so pressed upward as to embarrass respiration; and dropsy of the lower extremities may result from pressure on the great veins. The cysts may rupture into the peritoneum, causing fatal peritonitis; into the pericardium, causing fatal pericarditis; into the

lungs, or externally. Hydatids of the lung are almost always fatal—the disease here presenting the appearance of pulmonary tuberculosis, or consumption. In the kidney, abscess or extensive disease may be produced by the presence of the parasite, or the tumor may burst into the pelvis of the kidney, and its contents be passed in the urine.

Hydatid cysts, in any organ, may suppurate or undergo fatty and calcareous degenerations, that is, become converted into a chalky mass composed of lime salts, usually resulting in a cure.

In order to show the immense importance of this parasite, it is only necessary to give some statistics by Dr. Cobbold: Out of a very large number of specimens examined, he found that of the cases occurring in man, six per cent had entered the brain and three and one-half per cent the heart, all proving fatal. He estimates that fully twenty-five per cent of all human victims of the disease die from its effects. The number of sufferers is in some countries very large, especially in Iceland, where the disease is very prevalent, owing to the closeness of the relations between dogs and man. Concerning the number of domestic animals which die annually from the ravages of this tape worm, I know of no reliable statistics, but, certainly, the number must be immense, especially among horned cattle, which are the most frequent sufferers.

The mature worm produces in the dog very obscure symptoms of intestinal irritation, and is not in this stage, so far as we are aware, ever dangerous or fatal. If an animal is supposed to be infested, by examining a number of specimens of excreta the presence of terminal segments and ova will render the diagnosis certain.

The manner in which hydatids are introduced into the bodies of men and animals is usually through drinking water. A dog infested with this worm, is continually throwing off in the feces great numbers of ova; these float in the air, settle upon water, and are swallowed with it while drinking, with the results already described. The ova are also taken into the body with food, being carried through the air by the wind, and falling upon fruits, fodder, etc., are swallowed. The hygienic measures capable of preventing hydatid disease need most careful attention. All dogs known to be affected with this tape worm should either be killed or treated by a competent veterinary surgeon until all the parasites are expelled, and all excreta should be either burned or flooded with hot water. Flesh containing hydatid cysts should never be thrown out to furnish fresh sources of infection, which may be devoured by dogs or other animals, but should be either burned or deeply buried in the ground.

However, neither this nor any of the many kindred parasitic diseases which infest our herds, and place our own lives in constant jeopardy, and are yet so easily controlled, can ever be eradicated until Government shall undertake to outroot it. If a very few of the many thousands of dollars annually squandered and pocketed by jobbers and lobbyists were devoted to the support of a corps of able students of these parasites, how perfectly enormous would be the saving of human suffering, animal life, and, what is far more important in the eyes of the present generation—money!

In this age of improved architecture in barns, there is danger of overlooking proper ventilation, which our domestic animals need quite as much as human beings. The old style barn with cracks a

half inch or more between every board of the siding had too much ventilation. The wooden barn made of rabbeted boards well seasoned, with tight floors and doors, and windows, needs a complete system of ventilation as much as a dwelling house. The shoots sometimes provided to pass hay and other fodder from the bays and lofts to the stables below, will give sufficient circulation of air, if there is a good ventilator in the roof to permit a draft. The animal heat in a tight barn from a large stock of cattle is sufficient sometimes to prevent hard freezing, except in extreme zero weather. Foul air is damaging to health and thrift. The problem in barn building, where animals are to be sheltered, is to secure pure air without lowering the temperature below the freezing point, in winter. During the summer months, the windows and doors should, as a general thing, be left open.

## Eggs a Perfect Food—Experiments, etc.

Set an egg and hatch out a perfect chicken: it comes from the shell ready for vigorous action, having bones, muscles, nerves, feathers, etc., in short all the parts that are found in the human body, except feathers instead of hair. All inside the shell is used up in producing the perfect animal, and little or nothing has been added or subtracted from the contents of the egg during incubation—possibly a little absorption of gases through the shell. Does not this show very conclusively that an egg supplies all the elements for the nourishment of the human or other animal, and in the proper proportions? Being at a farmhouse, to while away an invalid's time, we made the following experiments with a dozen fresh eggs just brought in, which will doubtless interest as well as instruct many readers of the *American Agriculturist*. Part of the eggs were below the average size. Carefully weighing them with scales turning to a one-fourth grain, the following was the result: (seven thousand grains make a common avoirdupois pound.)

Number.....	1	2	3	4	5	6	7
Weight (grains).....	650	700	726	756	762	767	794
Eggs to 1 lb.....	10 1/2	10	9 3/4	9 1/2	9 1/2	9 1/2	8 1/4
Number.....	8	9	10	11	12		
Weight (grs).....	847	863	888	942	1014	av'ge 809 grains.	
Eggs to 1 lb.....	8 3/4	8 1/2	8 7/8	7 1/2	7 1/2	av'ge to lb. 8 1/2 eggs	

Practical lessons are taught by these figures: First, how nonsensical is the custom of selling eggs by count instead of by weight. A dozen eggs like No. 12 would just about equal twenty of No. 1. Fifteen of No. 1 would only equal a dozen of No. 7. Second, we boiled No. 2 and No. 11 five minutes, and let them cool. They each lost only 4 grains in weight. No. 11 yielded ninety-two grains of shell, leaving eight hundred and forty-six grains of solid, hard boiled egg, of which two hundred and eighty-four grains were yolk, and five hundred and sixty-two white. No. 2 gave ninety grains of shell, and six hundred and six inside, viz: white four hundred and nine, yolk one hundred and ninety-seven grains, or just about one-third yolk. The two eggs which together averaged eight hundred and twenty-one grains, or about the average of the whole dozen, furnished an average of seven hundred and twenty-six grains of solid food, exclusive of the shell. A dozen eggs would, therefore, supply almost exactly one and a quarter pound of solid food, of a perfect composition as first above stated—or a little over one pound to ten eggs. Most eggs run to a larger size than these. If fresh beef, for example, were as perfect a food as eggs, and if, including its large amount of water, it were as valuable pound for pound as eggs, beef at twenty cents a pound would be as costly as eggs of the above average at twenty-four cents a dozen. Third, eggs used in cake, in picked up fish, indeed, with any other food, add much nutriment to it. Soft boiled eggs (two and a half minutes quick boiling, and left to stand warm until a little thickened through by the heat), are much more digestible than hard boiled ones, unless the latter are grated or masticated very fine. Raw eggs are a very easily digested and highly nourishing food.



Fig. 1.—A TAPE WORM.

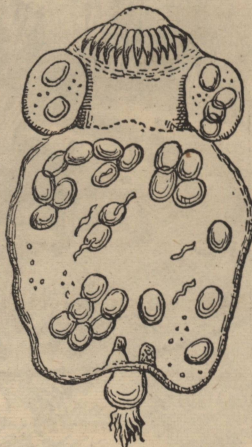
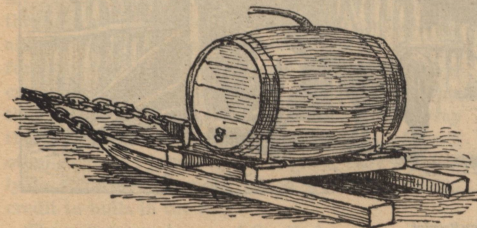


Fig. 2.—"HEADS" OF HYDATID.



### A Barrel Cess-Pool.

Mr. Charles L. Conover, of Basking Bridge, N. J., sends us a sketch and description of a contrivance for carrying away the sink water from the house. It consists of a stout water-tight barrel set on four-inch oak runners, as shown in the engraving. Two and a half by four inch joists are placed across the runners, and pieces of plank are nailed upon these to give the barrel sufficient height. Stout pegs are driven into each corner of the frame, which keeps the barrel firmly in place.



A BARREL CESS-POOL.

Two-inch holes are bored near the bottom of one head of the barrel for letting out the water; corn cobs may be used for plugs. One horse is attached by means of a chain passing through clevises in the ends of the runners. A pipe from the sink leads into a square hole in the top of the barrel. In this way the waste water is easily removed from the house, and, during a dry season, may be used profitably upon the garden or elsewhere.

### Legal Acquirement of Real Estate.

How do I get a farm? is a question which may well occur to the would-be farmer, for he must possess himself of land before he can follow the business of agriculture. There are in law two methods of acquiring title to real estate, namely, by Descent—as where a man upon the death of his ancestor inherits his property as heir-at-law, and by Purchase—which in a broad meaning is made to cover all other legal methods. The first of these is valuable mainly to those few fortunate individuals who happen to be the heirs of rich relatives not likely to make wills; the second is of more general importance, since it covers not only what is usually meant by the term purchase, but a dozen or more other methods, among which Possession and Accretion are perhaps the most common.

The mere Possession of land will, under certain circumstances, give absolute and full title to it. One who is in possession of land, that is living on it and exercising control over it, or collecting its rents and profits under a claim of right, is regarded by law as the owner of it, at least to the extent that no one can dispossess him of it without showing a title of higher and better character. This must be done within a certain time, for in all of the States there are limitation laws, which, to secure the peace of community, do not allow an action to be brought, or the title to land questioned, after the lapse of a specified time. If, therefore, the one claiming a better title does not properly assert it within the time limited, he loses his right to do so, and the title of the one in possession becomes complete and perfect. This is the way "squatters" get lands, and their titles thus perfected are as good as any. But in order to get title by possession, under the operation of the statutes of limitations, the possession must be actual, open, notorious, and adverse, and it must be continuous during the whole of the period prescribed. This period is fixed by the statutes of the various States, and it is not uniform. It is generally twenty years, in some States fifteen, and in a few only ten. The possession must be of land belonging to some one against whom the statute of limitations will run; for, if it is of Government or State lands, or the lands of any one who is under any legal disability, like infancy or insanity, etc., the limitation does not apply. In the latter case the possession must be for the time prescribed after the disability is removed. Government lands can never be obtained by possession.

Title to land may also be obtained by Accretion, which is the gradual addition through natural causes of particles of soil to that already possessed by the owner. If one, therefore, owns a farm bordering on a body of water which gradually deposits alluvium on his shore, the additions so made belong to him, even though they amount to many acres in the course of a lifetime. But such additions must be gradual, for if they come by any sudden convulsion, as by the abrupt change in the course of a stream, caused by a flood, or the like, then the rule does not apply. Questions of much nicety on this point have arisen concerning lands at many places along the Mississippi River.

Lastly: Title to land may be obtained by grant. Grant is the expression for a formal transfer of title to real estate, as where the Government grants land by patent, or an individual grants land by deed, etc. The lands of the General Government may be got by purchase, preëmption, homesteading, and tree culture. The lands of individuals may be secured sometimes at public or judicial sale, made by some officer of the law, in pursuance of a decree or order of a court, or under an execution, or the provisions of law for the enforcement of payment of taxes, etc. Such sales are made without warranty, and the purchaser gets generally whatever title the owner may have had.

But the most common and universal method of getting land is by buying it at private bargain and sale. Every one is familiar with this method, but it may not be known to all that the agreement does not become binding unless it, or some memorandum of it, is reduced to writing and duly signed. The payment or acceptance of earnest money does not "bind the bargain," as in the case of a sale of personal property. The law early regarded the selling and buying of real estate as a matter of such importance that it required contracts to that end reduced to writing. In the twenty-ninth year of the reign of Charles the Second, the British Parliament enacted the "Statute of Frauds," which provides, among other things, that all contracts for the sale of lands must be put in writing, and signed by the party to be charged. This provision has been adopted, with slight modifications, by all of the States. A "refusal" of land, or an offer to sell at a given price, can not, therefore, be enforced; and if one party relies upon a verbal promise of that sort, he will have no remedy if the other "backs out," even though much trouble and expense have been occasioned.

### Making Cattle Docile—Handling Cattle.

In many cases a cow's value is increased ten dollars when well broken to the halter to be lead and

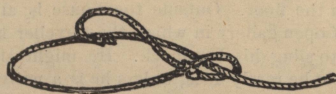


Fig. 1.—THE HALTER.

handled. A gentle cow is a pleasure, an unmanageable one a nuisance. A docile cow will give more milk. She can often be tethered where she can get extra food, at the same time utilizing grass-plats and fence corners which would otherwise go to waste. It is no trouble to put such a cow in the stable to be milked with comfort, and where

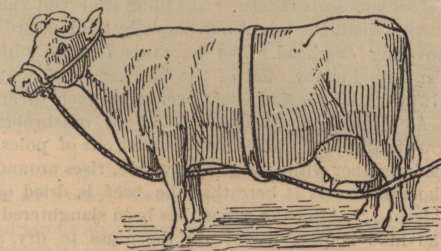


Fig. 2.—THE HALTER ADJUSTED.

she can be fed many things from the house, thus increasing the milk, and making her more profitable. It is very easy to train calves to lead. Tie them

up a day or two at first, to accustom them to the halter, and teach them to follow one leading them, by carrying a pail before them. A few lessons are sufficient. A halter (figure 1) is easily made from a rope by weaving one end in for a nose-piece and making a loop to pass the leading rope through. This loop allows the head-piece to pass over the horns of the grown cow, and when the end is

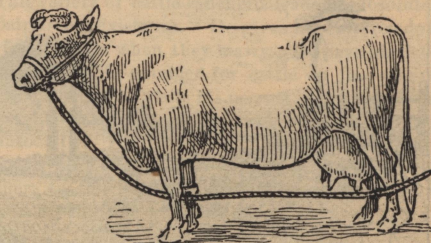


Fig. 3.—ANOTHER METHOD.

fastened the halter is always secure, with no danger of choking. Always place the head-piece behind the ears so that it will not draw across the eyes. A cow unbroken to the halter can be kept in subjection, and from running away, by passing the long end of the halter, if made strong enough, through a girth around the body, just behind the fore-legs (figure 2.). This gives a person holding the halter a strong leverage on the head; but not so great as in the form shown in figure 3, when the rope passes through a ring strapped to the fore-leg below the knee. This method enables one to keep a wild or refractory animal from running or escaping, and to hold it in subjection when moving it from one place to another; though it does not allow leading, which is best taught by beginning at an early age with the calf.

### Cold Weather Shelter for Stock Profitable.

Not one farmer in a hundred understands the importance of shelter for stock. This has much to do with success or failure of tens of thousands of farmers. Animals fairly sheltered consume ten to forty per cent less food, increase more in weight, come out in spring far healthier; and working and milk-producing animals are much better able to render effective service. The loss of one or more working horses or oxen, or of cows, or other farm stock, is often a staggering blow to those scarcely able to make the ends of the year meet, and the large majority of such losses of animals are traceable to diseases due, directly or indirectly, to improper protection in autumn, winter, or spring. Of the food eaten, all the animals use up a large percentage in producing the natural heat of the body at all seasons, and heat enough to keep up ninety-eight degrees all through the body is absolutely essential. Only what food remains after this heat is provided in the system can go to increase growth and strength and to the manufacture of milk in cows and of eggs in fowls. When heat escapes rapidly from the surface, as in cold weather, more heat must be produced within, and more food be thus consumed. In nature this is partly guarded against by thicker hair or fur in winter.

Any thinking man will see that an animal either requires less food, or has more left for other uses if it is protected artificially against winds that carry off heat rapidly, and against storms that promote the loss of heat by evaporation of moisture from the surface of the body. A dozen cows, for example, will consume from two to six tons more of hay if left exposed from October to April, than if warmly sheltered, and in the latter case they will be in much better health and vigor, and give much more milk. Other cattle, horses, sheep, and swine will be equally benefited by careful protection.

THE Goat is not, properly speaking, an agricultural animal, however useful it may be on the outskirts of cities or on the marsh lands surrounding mining villages, collieries, etc., or to turn to account the scanty and varied herbage of untillable mountain land. Still, people reared upon goats' milk are very fond of it, and speak of its nourishing qualities in the highest terms.





NOON-DAY AT THE RANCHE.—Drawn and Engraved for the American Agriculturist.

### Cattle Ranching in South America.

If cattle raising can be called an industry, it is certainly the principal one of the eastern section of South America. As a matter of fact, however, it is not so much of an industry as a special providence for those who profit by it. The vast grass plains, variously known as savannas, llanos and pampas, which are a feature of the country, are natural provisions for the sustenance of grazing animals. Nourished by their rich grasses, the herds increase and multiply with almost incredible fecundity, and man has only to reap, through them, the harvest bountiful nature has sowed. The only reason cattle raising is so much more extensively practiced in Equatorial America than agriculture, is that its practice requires less labor, and imposes less responsibility on the indolent native, than the tilling of the soil, or the manufacture of its products into objects of commercial value.

The South American cattle ranchero builds his house on the lonely prairie, where water is handy and the grass of the neighborhood is good. Sometimes he may break sufficient ground to plant a domestic vegetable supply. Commonly he does not do that. Out of a hundred rancheros, it would be impossible to find more than a dozen who raise anything but Indian corn. This is planted rather for the benefit of the horses and mules of the passing traveller, than for the planter's own use. He is content to live on dried meat with bread made of cassava flour which he trades jerked meat for, and on what he may buy in his occasional visits to the nearest towns. He uses little milk, and no butter though it might be had for the trouble of churning. It is the churning which frightens him.

Vast and primitive structures are on the larger

hides are stored. Beneath, in a couple of rooms with mud walls and floor, the ranchero and his dependents live. The ranchero and his family usually have a room to sleep in apart from the rest. The common herders repose in the general room, in



THE RANCHE BOY.

hammocks, on shelf like stands around the walls, and on the floor. Outside the house is always a sort of open gallery in which the traveller is privileged to sling his hammock. He might sleep inside, but he rarely does, unless he is a native, with the epidermis of a rhinoceros.

Beside the house is always found an extensive corral, or pen, walled in with strong posts. Here the cattle to be slaughtered and those kept in the neighborhood of the rancho are confined. In front of the corral is the slaughtering place. This is simply a couple of posts to which the doomed bovine is hauled up by the hinder legs to have its throat cut. You can scent a slaughtering place before you see a rancho. At killing time you can further distinguish it at a distance by the buzzards hovering overhead. The buzzards dispute with the dogs for the offal of the butchery, and they always make rousing fights over it between them.

At slaughtering seasons, a sort of mushroom growth of flimsy frames, constructed out of poles, tied together with thongs of rawhide, rises around the rancho. It is here that the beef is dried or "jerked." After the animal has been slaughtered, the hide is pegged out on the grass to dry, a wooden peg being driven through each corner of the hide to keep it from shrinking. The meat is then cut into strips; salt is well rubbed into it and it is thrown upon the frames to dry in the sun, the old folks and children of the rancho being kept busy

driving the buzzards from it. When it is dry, jerked beef is as black and tough as rubber. It can be boiled sufficiently soft to eat, but it is serious eating at the best.

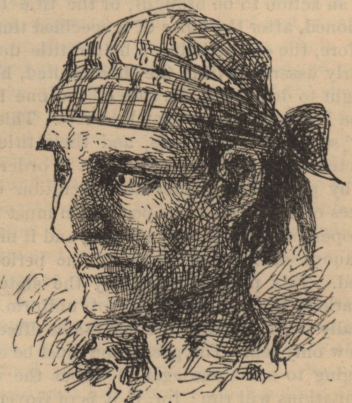
The horns were formerly a dead loss to the rancher, but of late years they too are preserved for sale. The skulls and bones are left where they may happen to fall, unless the ranchero is particularly methodical. Then they are placed into a heap out of the way, until in time they become a mountainous monument to the business of the place. There are to be found perfect mounds of this kind, which, in the course of years, become covered with a deposit of earth, and dressed in grass until their original character can only be discovered by digging into them. In one section of Venezuela, an entire lake has been filled up with bones from the surrounding ranches, and is now a dry basin sown with gleaming skeletons, the aspect of which is indescribably hideous to every one but those who are native, and to the manor born.

Life on a cattle rancho under the tropics begins with the dawn and ends at nightfall. Except at the slaughtering time, it is a lazy, shiftless life. The ranchero takes it very easy indeed, and none of his dependents are particularly hard worked. The women do more than the men at all times, and between their domestic and agricultural duties, develop what little industry one is likely to encounter. Their liege lords spend the middle of the day in their hammocks. At morning there may be some riding out to investigate the condition of the herds, and at evening cows with calves, which may be needed, are driven in. But at noon every one who wears pantaloons or the apologies for them, so popular there, takes to his hammock, to sleep out the heated part of the day. In the dry season, indeed, labor of any kind is absolutely impossible, when the sun is at the meridian. Travellers halt to spend it in the shade, and make up at night for



OWNS TEN THOUSAND HEAD.

ranches of the South American plains. The walls are formed of stout posts, planted deep, wattled with saplings or split poles, and plastered over with mud. Under the tall roof of this building the



A VENEZUELAN COW-BOY.

the lost hours between twelve and three o'clock.

The cattle are left to nature's care entirely. They are branded with a hot brand or by gashing their rumps or slitting their ears, and turned out



loose to shift for themselves. From time to time they may be "rounded up," or in plainer English, driven into the limits of a certain distance from the rancho. But this is only performed when the grass is well devoured, and hunger likely to drive them to more distant and strange pasturages.

It is singular to observe how the cattle cling together, in spite of the freedom which is thus allowed them. Cases are rare in which they go astray. Cows with calves may hide them for a time, but otherwise the rancho can reckon on finding them whenever he may wish. Of course this method of life renders them shy, but they are by no means dangerous. We have often ridden through great herds of them without a menace, and only on a couple of occasions have been forced to use the spur to escape some particularly cranky and belligerent brute. Among themselves they frequently fight savagely. The Indians say the cows quarrel because they are jealous of each other's calves; however this may be, they certainly do some savage work which would be no discredit to bulls in the ring.

The native rancheros of South America are, as a rule, an amiable and quiet race, whether creole or half-breed; their wants are few, their tastes simple, and their vices insignificant. They breed vast families of children and are indulgent, though somewhat whimsical parents and masters. However rich they may be in their flocks, they are generally poor in purse, for they kill or sell their stock only to meet their needs. A man on the South American plains is said to be worth not so much money but so many head of cattle, and it is his pride to add to the count.

He keeps a regular census of his herds by perforated boards into which pegs are stuck. Some ranches have their walls almost covered with these boards, and the master will keep pegging them up as if he was engaged in a game of cribbage with nature, and constantly winning. As a rule each peg represents a single animal. We only found one rancho where the count was kept with pegs for the thousands, the hundreds, and the single heads. This rancho had spent some years in Trinidad in his youth, and was regarded by all who knew him as an exceptionally advanced and brilliant man; yet he could only write his name in printed letters, and could not read written letters at all.

There are, of course, upon the plains men who breed cattle with some intelligence and energy. These are educated natives or foreigners. With

owners live on the best they can raise and buy, and keep their motley armies of followers as profitably busy as they can be kept. In short, intelligence and the energy born of intelligence, raise the standard of this class of cattle ranch-



A RANCHO.

ing to the best level of which it is capable. But men who form this class are exceptions to the great rule. For one man who keeps books there are hundreds who use the numbering boards; for one man who tries to breed his cattle at their best, to utilize their products in every form and to enjoy their uses after the fashion of civilization, there are thousands who have no as-

for their meat, and what of it he does not use himself he trades with the Indians and the small farmers for game and vegetables. The hides he makes into furniture or trades in the same way. Thus, his bovine army goes on increasing year by year, and if it were not kept down in numbers by the forage of wild beasts, the accidents of the elements, or the regular annual prairie fire, it would soon overrun the country with its horned legions. This variety of cattle rancho leads an absolutely patriarchal existence. He gives his children dowries of cattle when they marry. He pays his debts in cattle. He gambles for cattle on the rare occasions when he visits his nearest neighbor, or his neighbor visits him. His sway over his people is autocratic. He dispenses justice to them as it seems best to him, and he makes laws to rule them to suit himself. He is a little king, lording it in his solitude with as little appeal from his decrees as there is from those of the Czar.

But he is a good fellow and a hospitable one, and we who have enjoyed his generous entertainment during many a lonely journey on which a kindly human face came like a benediction, are happy to acknowledge the debt of gratitude.

### White Polled Cattle.

White polled cattle were bred in ancient times on the monastic estates, in several different counties of England. A few descendants of these still exist, and although of large size, they are not thought equal in form and style to those of a century ago. At that time and previously, as is supposed, they resembled Shorthorns, and were famous for milk and beef. It is a great misfortune that this highly useful breed has been neglected and suffered to almost run out, for had it been carefully cultivated like the Black Polled Cattle of Scotland, and the Red Polled of England, it would have been counted in the foremost rank of the improved stock of Great Britain. These animals are what the present time so earnestly demands—namely, polled cows of large size, great and rich milkers, and when dried off, capable of being fattened economically and quickly, turning out a superior quality of beef. The White Polled would become a generally useful animal, with the further advantage of being destitute of horns, the main use of which is to hook and gore each other, and stab their keepers. White Polled cattle are common in the north of Scotland, and were pro-



THE RANCHO AT NIGHT.—Drawn and Engraved for the American Agriculturist.

them the business is scientifically pursued; they have their regular slaughtering seasons and make all they can by the trade. Their houses, though constructed on the general plan of all tropical or sub-tropical dwellings, are paved and floored, kept cleanly and filled with comforts. Their

pirations above that of living with as little work as possible, and using their wealth only to satisfy the rudest demands which nature makes on them.

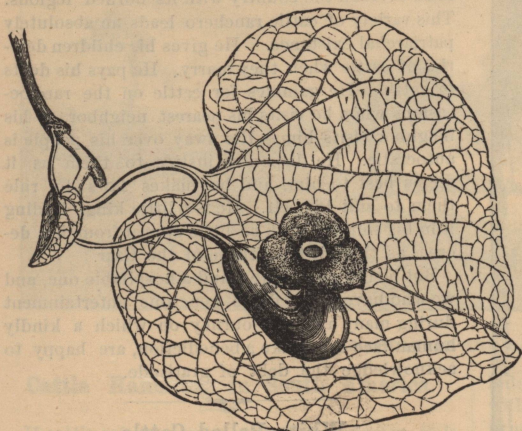
In many of the interior sections, where access to a market is impossible, the rancho simply uses his herds to live upon. He kills his cattle

duced, it is thought, by a cross of Shorthorn bulls on the native Black Polled Cows, as they are known to have been brought into this country for one hundred years or more past; but at first under the names of Teeswater and Holderness. The same crossing has been done in Orkney and other islands.



### A Useful Vine—The Dutchman's Pipe.

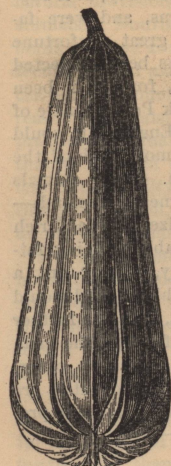
As a vine for making a dense shade to a veranda, or to train upon a trellis as a screen to hide unpleasant objects, we know of none equal to the Dutchman's Pipe (*Aristolochia Siphon*). Unfortunately, there is no evergreen climber sufficiently hardy to endure the winters in the Northern States,



THE DUTCHMAN'S PIPE (*Aristolochia Siphon*).

and we must be content, until one is discovered, with the best deciduous kinds. Among these the Dutchman's Pipe, for most uses, stands at the head. It will grow as tall as will be needed; its leaves appear early in spring, and when full grown

are often a foot across, overlapping one another shingle-wise, and forming a complete curtain of verdure. The flowers, of a quaint shape that readily suggests its common name, are always objects of curiosity. They are so constructed that they can only be fertilized by insects, and probably owing to the absence of the proper insects, it rarely bears fruit at the North. The vine is a native from Pennsylvania, and in rich woods on the mountains to far southward. The engravings show a leaf, flower, and seed-pod, all much reduced. The vine is less common than it would be were it readily propagated, like most others, by cuttings. It is



FRUIT.

multiplied by layers and from seeds, which in some southern localities are produced in abundance.

### Preserving Seeds of Forest Trees.

So much disappointment has attended the attempts to raise forest trees from seeds, we have, of late years, advised our friends who wished to plant a moderate number of trees to purchase them. There are now several who make a business of supplying young forest-tree seedlings at a very low price. Still, if one wishes to plant largely, and can give his seed-beds the required care, it will be cheaper to raise his own trees. Success in a great measure depends upon the proper keeping of the seeds through the winter. Those who intend to raise their own trees, should begin with the seeds, as soon as they are ripe. Some seeds, if allowed to become dry, will remain in the ground one or more years before they germinate, and some fail altogether. The seeds of the Silver and Red Maples, the Elm, etc., ripen in early summer; these must be sown at once, and will soon come up and make a strong seedling tree before the winter. If the seeds of these are kept until spring, they will fail. The Sugar Maple and others, ripen their seeds in autumn; these must be kept over winter. The majority of tree seeds may be preserved in good condition if mixed with their own bulk of sand and kept in a cool place. The sand for this

purpose should be damp, but not wet. It is usually in proper condition as it is dug out of the bank; when pressed in the hand, it will cohere and keep the shape given to it, but no water will be squeezed from it. All the smaller seeds, and the thin-shelled larger ones, such as Chestnuts, Acorns, Beech, etc., are best preserved in sand, as are the seeds of the stone-fruits: Plum, Cherry, and the Peach, if these last are in small quantity. There is

more danger from keeping the seeds too warm than from too great cold. An occasional freezing will do no harm. Care should be taken that the sand does not become dry during the winter, though this will rarely happen in a properly cooled place. The seeds of the Magnolias are apt to become rancid; they should be mixed with an abundance of sand in order that they may be separated from one another. Walnuts, Hickory-nuts, and others with bony shells, are best kept in heaps of a few bushels, which are covered with sods, over which is placed sufficient earth to keep out the rains. In the absence of sods, a covering of straw will answer. The seeds of Osage-Orange are best kept in the fruit or balls, which may be placed in a heap or in barrels, and exposed to the weather all winter. The seeds of most Pines and other conifers are best kept in the cones until spring; most of them will open and liberate the seeds

by keeping them in a warm place for a few days. The fruit of the Red Cedar, and others with a berry-like cone, should be mixed with earth, buried for a year, and sown the following spring; even then, a share of the seeds may not germinate until the next year. Those who sow forest seeds should recollect that the most hardy are tender when young, and need protection from the sun. Cottonwoods and willows are easily raised from cuttings.

### The Purging Cassia.

A friend, who has seen some curious long pods in a druggist's shop, being told that they were cassia pods, wishes to know about them. As the common cinnamon of commerce is often called cassia, he is puzzled, and inquires whether these pods have anything to do with cinnamon. The



Fig. 1.—THE PURGING CASSIA (*Cassia fistula*).

Pods in question are blackish-brown, a foot or more long, and nearly an inch through. They are

borne by a tree called *Cassia fistula*, a native of India, but now cultivated in all the warmer parts of the world. The tree is a handsome one, often forty feet high, and with divided leaves, somewhat like those of the locust. The golden-yellow flowers are in large panicles at the ends of the twigs; their appearance is given in the engraving, fig. 1, which also shows the leaves and pods, all much reduced. The pods, which are in large clusters, when beaten against one another, by the wind, make a noise that may be heard at a long distance. When one of the pods is split open, lengthwise, as in fig. 2, it is found to be divided by thin crosswise partitions, each cavity containing a single seed. The seeds are imbedded in a black, very stiff pulp. To obtain this pulp, the pods are bruised and boiled in water, which dissolves it; the liquid being strained is evaporated to form a sort of jam, known as cassia pulp. This pulp is not unpleasant to the taste, and has a decided laxative effect; it forms an important ingredient in the "confection of senna," or the "lenitive electuary," of the shops. An eminent botanist once told us, that when a boy, he and other boys spent some of their Saturday holidays about the docks. A lot of Cassia pods were once found thrown in a pile upon the wharf, and they somehow got a taste of the pulp, and, finding it pleasantly sweet, helped themselves freely to the broken pods. He said that each boy soon found that he was wanted at home, and a sicker lot of boys, including himself, was rarely seen.

Fig. 2.—POD OPENED.

### Earth as Winter Protection.

A covering of earth may often be usefully employed to protect plants from severe changes of temperature during the winter. Newly planted fruit trees should have a conical mound of earth at the base, which may be a foot or a foot-and-a-half high, and so narrow that it will shed water readily. This answers several purposes. It is well known that the portion of the tree where the roots join the stem is especially sensitive, and a covering of earth protects this. Besides, it answers better than a stake to prevent disturbance of the tree by heavy winds. Another benefit is the protection it affords against mice, often so injurious to young trees. Half hardy and doubtfully hardy plants of all kinds are better protected by a slight covering of earth than by the old method of "strawing," or surrounding them with a thick covering of straw, which often smothers them. Grape-vines in severe localities, and partially tender kinds everywhere, should be trained with a view to removing them from the trellis, and laying them flat upon the ground. When they are pegged down as flat as may be, the canes are covered with an inch or two of soil. This method is the best for figs, and allows this fruit to be raised much farther North than was formerly thought possible. The trees are prepared by growing them with roots upon one side only, to allow them to be laid flat, and the branches are well covered with earth. The tender kinds of raspberries are protected in this manner on the large plantations along the Hudson River, N. Y., where many acres are annually covered.

The same answers for tender roses which are successfully protected by laying them down, cover-



ing with a low mound, upon the top of which sods are neatly laid in such a manner as to shed the rain. Herbaceous plants in the flower garden, of doubtful hardiness, should have a slight mound of earth over them, first cutting back the stems. No doubt this method of protection may be applied to many tender and half-hardy shrubs and other plants which are now taken up and placed in the green-house or the cellar for the winter.

### Sparto or Esparto Grass.

There are annually imported into England, between one and two hundred thousand tons of a



THE ESPARTO GRASS (*Stipa tenacissima*).

grass, and a considerable quantity, we do not know just how much, is brought to this country. This grass is imported for feeding—not animals, but the insatiable paper mills. It is known in commerce as Sparto and Esparto grass, and is largely used by English paper makers, at least, as a substitute for rags. Spain was at first the source from which the supply of Sparto was derived; the natural growth being rapidly exhausted, cultivation was resorted to, and this has extended to Portugal and Algiers. The grass is a species of *Stipa*, one of which, the Feather-grass (*S. pennata*), is much cultivated for its large feathery plumes, which are often imported as ornamental grasses. The species furnishing the Sparto is *Stipa tenacissima*, the general appearance of which is shown in the engraving. Formerly, and perhaps yet, another and very unlike grass (*Lygeum Spartum*) was collected with the *Stipa*, but that is regarded as the proper Sparto. The Sparto was long in use for cordage, nets, sacks, etc., and even shoes were made of it by the Spanish peasantry. Its introduction as paper stock is comparatively recent. It makes excellent paper, and is little, if any, more difficult to work up than rags. In Spain it is cultivated, by setting out pieces of the roots, and if it were not for the destructive custom of pulling it up, instead of cutting it, a plantation would last indefinitely. The grass requires a warm and dry climate, and grows in sandy soils. There are probably many localities in

our Southern States, where Sparto would be the most profitable crop that could be grown. The price, several years ago, was seventy dollars per ton, and even at that rate it would pay. The cultivation of this grass is a matter that our Southern friends should look to. Our policy should be, to import nothing that we can produce.

### What is Anatto?

Cheese has for a long time been colored with anatto, and of late years, it has come in use, not only in creameries, but in home dairies, to give color to butter. The increasing use of the substance, especially in winter, naturally leads many to ask: "What is anatto, and is it harmless?" The name, which came with the substance from South America, has a great variety of spellings, besides that given above, which is the simplest and the one

mon cotton stuffs of a dull orange, it is often used in domestic dyeing, with potash as a mordant. So far as we are aware, the various butter colorings in the market are chiefly, if not entirely, solutions of anatto, made by the aid of some form of potash or soda. It seems better suited than anything else to give pale winter butter the color of that made when the cows have good pasturage. It is entirely harmless, we think. It has long been added to chocolate in South America, for both color and flavor, and is used by Indian tribes in that country to paint their bodies. One writer says that it is about the only clothing the natives have to protect them from mosquitos and other insects.

### Parsley in Winter.

It is very easy to have a supply of parsley all winter. Take up the plants from the garden, cut off all but a few small leaves at the centre of the tuft, and plant them in a box of good soil. Another method is, to take a keg—a nail keg will answer; bore numerous inch or inch-and-a-half holes in its



A BRANCH OF ANATTO (*Bixa orellana*).

we first learned; it is given in different books as *annatto*, *annata*, *annotta*, *arnotto*, *arnota*, and so on. The substance is the product of a small South American tree, *Bixa orellana*, belonging to a small family to which it gives its name (*Bixineae*), of which we have no representatives. Systematically, the family is placed near that of the violets. The tree rarely exceeds twelve feet in height, has a handsome head, and each branch is terminated by a cluster of flowers of the color of peach-blossoms. The engraving above shows the shape of the leaves and appearance of the flowers. The pods are at first of a fine rose-color, becoming brown as they ripen; as shown at the right hand side of the engraving, they are covered with bristles, and contain numerous seeds, the important product. Each seed is surrounded by a dark red pulp, to remove which, they are placed in water and allowed to ferment, with frequent stirring. When the seeds are free from pulp, they are strained out, and the pulp allowed to settle. It is afterwards placed in kettles, evaporated to a thick paste, which is the anatto of commerce. It is made into rolls, weighing two to four pounds, which are covered with canna leaves and packed in wicker baskets, or more generally of late, in boxes. Anatto, when fresh, has much the consistency of putty, a dark, brownish-red color, and with a somewhat disagreeable odor. It has long been used in dyeing, though on silks the color is not very fast. To color com-

sides. Place the parsley with the crown at the holes and the roots extending horizontally into the keg, gradually filling in with earth to hold them in place. Finish by planting some roots upright at the top. Either box or keg, if supported at a kitchen window and watered as needed, will give a supply of fresh leaves all winter. The residents of cities who have no gardens, can buy parsley for this purpose in the markets, as it is usually sold with the roots attached. Those who are fond of parsley as a seasoning, and do not care to be at the trouble of raising it as above, may dry it readily and find it about as good as when fresh. Spread the leaves thinly on a pan; when the stove oven is not very hot, place this in it, and leave the door open. The parsley will dry very quickly; as soon as it is crisp, rub it between the hands into a powder, which is to be kept in bottles, tightly closed.

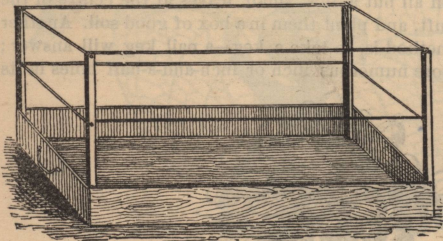
If a new bed of rhubarb is needed, having spaded into the soil an abundance of manure, take up the old roots, and divide them in such a manner as to leave a bud attached to each piece set out. On large plantations, seedling plants are preferred and a supply provided. Cover old beds with a heavy dressing of manure. If it is desired to force rhubarb for use in late winter or early spring, take up some large roots and place them under the stage of a green-house, or in a warm cellar, covering them with earth.





### Flower Box, with Supports.

Flowers in pots do not, as a rule, have room enough to expand their roots properly; we have had more success with flowers grown in boxes of the shape given in the illustration. This box is convenient for window-gardening, or can be used in the summer for plants generally put into pots. Some of the finest geraniums we ever raised during the winter months were grown in such a box.



A FLOWER BOX.

It is made of inch pine, the bottom being common rough stuff of that thickness, and the sides of planed material. It is thirty inches long and twelve inches wide, the sides being four inches high. It should be screwed together, to prevent the moisture in the soil from drawing the joints apart, which is often the case when nails are used. In each corner, neat, nicely planed oak or hickory pieces, one inch square, are securely fastened, the pieces being about twelve or fifteen inches high; to these are attached stout cords, to keep the branches of the plant within bounds. The box can be painted, stained, or varnished on the outside, as may be desired by the owner.

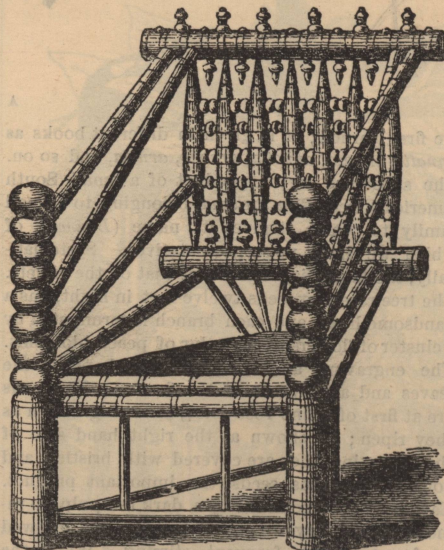
### The Home Crematory.

When one who has lived in a city removes to the country, he soon misses several of the conveniences necessary to a dense population. One of the most prominent of these is the scavenger's or dustman's cart, which in well-regulated cities and towns comes around at stated intervals to carry away the household wastes. These wastes, known by the comprehensive name of rubbish, occur in a country house as well as in a city residence, and are more noticeable for the reason that there is no provision for their removal. A large share of the family wastes may be made useful, so to speak, by destroying them, that is, by burning, by which all that is of any value will be left in the form of ashes. Every country place, large or small, should afford some corner in which a crematory, or "burn heap" may be located. The wastes of a household are of three classes: The utterly useless and incombustible, such as old crockery and stone ware, old iron vessels, fruit cans, etc., which are best disposed of by burying in a deep hole; then there are the weeds, vegetable refuse of the garden, and other materials that will decompose, which may be turned to good account in the pigeon or on the manure heap; still a third class comprises materials which cannot be readily converted into manure, and are too valuable to bury. Of this kind are all clippings and prunings of trees and shrubs, all weeds too far advanced for the manure heap on account of their seeds, old stakes and labels which are of no further use, waste paper and other combustibles that accumulate in the house, and various other materials. We find it convenient to have a barrel in a suitable place to receive all waste papers and such rubbish as would be scattered if placed upon the heap at once, and the best disposition to make of otherwise useless barrels is, to consign them to the heap with their contents. If such rubbish is occasionally com-

packed by pounding it down, using a heavy stake as a pounder, a barrel will hold a surprising quantity. At a convenient time such accumulations should be burned, of course, taking all proper precautions against burning anything else. It may be sometimes necessary to add combustible materials as fuel, in order that all the contents of the heap may be thoroughly burned and reduced to ashes. It is to be kept in mind that the chief end and object of this method, aside from getting rid of the rubbish, is the ashes. Hence the heap, instead of covering a wide area, should be kept with as small a base as possible, and care taken to secure thorough burning. Soon after the fire is out, the ashes should be taken up; never mind if some soil is mixed with them, and placed in barrels or boxes for future use. Do not take these receptacles to a shed or other outbuilding, as there is always danger of hidden fire, but protect them from rain by covering with old boards. There is no crop, upon old land at least, whether of the farm, orchard, vegetable, or other garden, that will not be benefited by an application of ashes. Now that wood is but little used for fuel, this valuable fertilizer is annually becoming more rare and difficult to procure. By proper attention in the direction here indicated, a surprisingly large quantity of ashes may be secured, while much unsightly rubbish is disposed of. We would add that, as a rule, the best method of utilizing all large bones is, to place them on the heap and allow their ashes to add to the fertilizing value of the rest.

### A Quaint, Antique Chair.

Now that antique forms in furniture are popular, we give a design of a chair which may be easily made. If the pattern is not exactly reproduced, it will suggest the putting together of a chair that will be both useful and ornamental, in the farmer's hall, or "front entry," on the piazza, or, if neatly made, even in the parlor. Those who have the use of a lathe can easily turn the parts, or, in the absence of this, such a chair would be pleasing even if made in rustic work, of such material as the limbs of the Red-cedar, or roots and branches of the Mountain Laurel. The pattern is taken from the President's Chair at Harvard University, Cambridge, Mass. The history of the chair is lost in antiquity, but it has been in use for more than a cen-

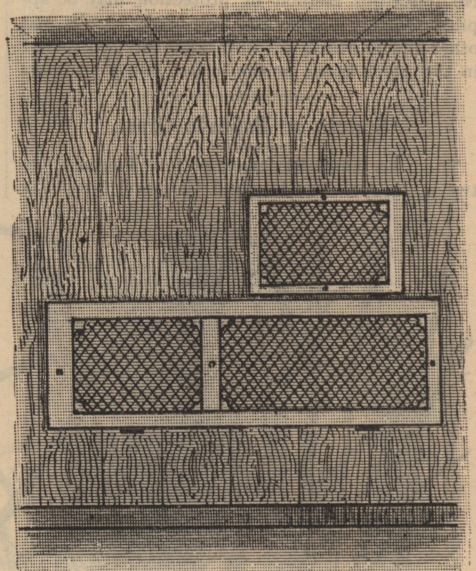


tury, and is still occupied by the President of Harvard when he confers the degrees at the annual commencements of this old University.

**Coffee Flavoring.**—To many persons the flavor of good coffee is preferable to that of vanilla, cinnamon, lemon, or nutmeg. Strong coffee, especially the first clear liquid obtained by passing a little water through good roasted coffee, not that burned to a bitter taste, may be successfully substituted for other flavors in many kinds of cake, and in some pudding sauces.

### Where to Place Fly Screens.

Fly screens for doors and windows are no longer needed this season and have, doubtless, been re-



moved and placed where they are always in the way, or where somebody will be almost certain to put his foot through them sometime during the winter; or else they are hung up in some spot from whence they will, at the proper moment, tumble upon some one's devoted head and crack the skull thereof. Now, it is no more trouble to place them and all their belongings out of the way at once, than to put them right in the way where nobody can find them when they are needed again. Take off all the springs and attachments, tie them together, and fasten each lot to its own screen; then take the screens and fasten them with screws against the inside of some shed, as shown in the cut. Next summer when you need them you will find them all together, straight and in proper condition for service, instead of being twisted, warped and broken, and their attachments scattered to the four winds.

### How Shall we Dress.

It is the laudable ambition of every true lady, to dress as well as her means and taste will admit. Those who live far away from the principal cities cannot see for themselves, what is new and appropriate to the season. To these we hope to give some idea of the prevailing styles, for dresses, hats, cloaks, children's garments, etc. Inquiries upon these and other household matters may be addressed to Household Department, *American Agriculturist*. The numerous fashion magazines, many of them admirable, are suited mostly for those who have abundant means, and are able to have a variety of dresses. We shall write for those only who wish to dress in the best style on moderate means.

For fall dresses, basques, polonaises, and redingotes, (a long tight fitting outside garment) are still worn. Basques are shorter—often pointed before and behind, and very short on the hips. An old polonaise may be modernized by cutting off the front into a basque shape, leaving the back as it is and puffing it very full. An apron front of velvet, brocade, or anything which will harmonize with the material, may be inserted. These aprons are gathered full around the waist, and hang long and loose, cut at the bottom in battlements, or points—or fitted plain, and looped full and high upon the hips. For plain skirts to wear with plaid or figured over-dresses, a deep plaited flounce is best. For a plain suit, a skirt with a plaiting—of either side or box plaits,—about three inches deep, with narrow or broad tucks above, is very neat. For silk, a broad ruche, plaited very full above the flounce, is simple and dressy. Sleeves are for the most part long and plain. Some are puffed on the shoulders, but this style is not generally becoming;



it makes one appear high shouldered. A bow, of many loops, of narrow velvet ribbon, is worn on one or both shoulders. Narrow ribbon velvet, of black, or bright colors, is worn around the neck, and tied so as to leave long loops and ends at the left side. It is used in rosettes for trimming hats and bonnets, and also looping overskirts.

Jersey waists, which fit to the form like underwear, are very useful and economical for ladies and children. They come in black, scarlet, dark blue, and maroon colors, and any skirt can be worn with them. Small bonnets are made of material to match the dress, are of velvet, and trimmed with small fruits, flowers, or feathers, with narrow ribbon or velvet strings. They are of the small, close shape mostly. Good taste in material, is generally marked by simplicity of design, if plaid or figured—but of good quality. Plain colors are always preferable, and a lady with a nice black silk for best, and well fitted dark flannel for the street, and simple home dresses, with a few ribbons and laces of nice quality for ornamentation, is well dressed for any occasion.

Plain collars of velvet, with cuffs to match, trimmed with white lace turned upward, and tied with a bow and long ends of narrow ribbon, are worn with any dress, if the color is in harmony.

ETHEL STONE.

### Home Decorations for Thanksgiving.

At Thanksgiving a few wreaths and other decorations, put up in places where they will show to the best advantage, will do much toward giving the



Fig. 1.



Fig. 2.—CRANBERRIES.

room a holiday look. The work of making these wreaths affords much pleasure, equal to the satisfaction felt when viewing the completed work.

Golden wheat, and autumn leaves, and berries, belong to Thanksgiving, as fitly as holly and mistletoe to Christmas. The bright berries of the mountain ash can sometimes be kept until Thanksgiving, but not always so, and it does not always do to depend on them. Sumach, if gathered before it looks dried and brown, will keep its lovely dark-red color. Climbing bitter-sweet, or wax-work

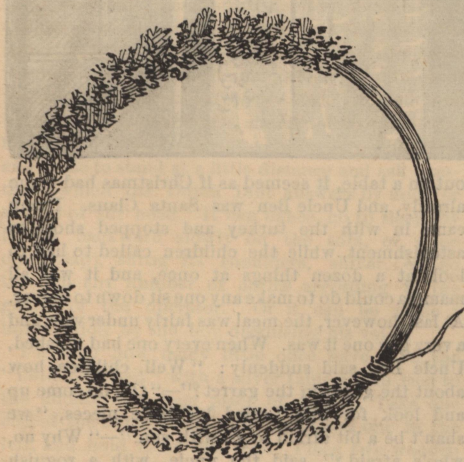


Fig. 3.—AN EVERGREEN WREATH.

berries, are most effective. If they are brought in from the woods on long stems, they can be easily trained over pictures and along the wall.

Substitutes for berries may be made in various ways. Cranberries can be arranged in bunches with little trouble. Each berry is strung on a fine

wire (figure 1), the ends of which are then doubled and twisted together, and six or eight berries are tied into a bunch (figure 2). The wire must be cut into pieces about five inches long, and should



Fig. 4.—EVERGREENS ON A LATH.

be the fine kind used for wiring cut flowers. Peas and beans softened by boiling, can be put on wire in the same manner, and given a scarlet coat by dipping in sealing wax dissolved in alcohol, before making into bunches.

One of the easiest methods of making wreaths is to tie small bunches of evergreen to hoops of the desired size. These (figure 3) may be made out of strips of heavy pasteboard, or barrel hoops, cut the right length and securely tied. Ropings are made by tying small bits of evergreen to rope with fine cord. For some places, laths covered with evergreen (figure 4) are more useful and more easily managed than the limber roping.

If the hall is wide and roomy, as every hall should be, it should have a full share of the decorations. Large, round wreaths may be placed over each picture. A group of flags of different sizes, in the most conspicuous place on the wall, and laths, well covered with evergreen, mixed with bright berries, over the doors. Place a small stand beside the door leading into the dining-room; arrange a wreath of box or club-moss around the edge of the top, and a vine of bitter-sweet, mixed with evergreen, around the standard. After the seeds are removed from a large, yellow pumpkin, fill it half full of damp sand, place on the stand, and fill with dark green box, bitter-sweet berries, sumach, long heads of wheat, a few bunches of bright fall leaves, heads of millet, one or two ears of corn, and small red or other bright apples, stuck on twigs.

Over the mantel in the parlors, make an inverted V-shaped arch (figure 5), by joining laths covered thickly with evergreen. At the top of the arch place a cluster of berries and some green to trail downward. Instead of a wreath over the pictures in the parlor, put vines of bitter-sweet, with which evergreen or trailing club-moss has been mixed. If bitter-sweet vines can not be procured, use any graceful vine—wild grape vines and Virginia-creeper answer well,—and decorate it with club-moss, or evergreen, and berries made as described. Beneath small pictures a cluster of green may be tacked, and a vine extended from it up over the picture, as shown in figure 6.

The decorations over the dining-room mantel may be quite different. A large bunch of green, mixed with wheat, millet, and berries, should be tacked up near the ceiling, and vines or ropings of green may hang down and be fastened out at each side. Beneath the arch should be placed a cornucopia filled with autumn fruits and vines.

Vases, even if choice, and treasures of art, are removed from the mantel to make room for two, manufactured, like the one in the hall, from plebeian pumpkin, and filled with autumn fruits and vegetables. These various suggestions given above can be easily carried out from the illustrations. They may be changed to suit the different places to be decorated.

MRS. BUSYHAND.

### Economy and Comfort.

Very pretty durable bed-room rugs can be made from coarse but tightly woven material, such as is used in coffee sacks. They may be lined with the same or other heavy, coarse material. Briar-stitch them around the edges with bright colors of coarse woolen yarn, and make a circle in the centre of the same, or some other simple design of fancy work. We use old guano and phosphate sacks. They are made of the strongest and best material, very thickly woven. To remove the offensive odor hang the sacks out in one or two hard rains. Soak them afterwards in hot suds, and hang them up and expose them to the air and sun a day or two. Then

wash them thoroughly and they are ready for use. These rugs are quickly made, easily washed, neat in appearance, and save much wear of carpets.

When blankets and large woolen garments are much worn, they may serve as filling for thin quilts. It is warmer than cotton, and will not "wad" when washed. This filling must be torn to pieces and laid with perfect smoothness in the quilt.

Very warm, pretty leggings for children can be made from the good part of old woolen pantaloons. Turn the cloth wrong side out. The leggings should come high over the knee, and be lined throughout. They are far more durable than knit ones.

We recently made a handsome, serviceable child's cloak out of an old coat. The wrong side



Fig. 5.—MANTEL DECORATIONS.

of the coat, which had a heavy nap, was used for the right side of the cloak. The breast and back were interlined with pieces of flannel. The collar, cuffs and pockets were made of different colored material. When completed, the garment above described is warm, economical and stylish.

A simple and durable stocking supporter for children can be made with bias strips of heavy



Fig. 6.—PICTURE DECORATIONS.

flannel. Cut the strips the desired length, and an inch and a quarter wide. Double the strip lengthwise and stitch the edges together. Work a button-hole in each end, one end to be buttoned on the stocking and the other on the waist. Bias flannel will stretch almost as much as ordinary elastic.

**A Nice Coffee Cake.**—On partaking of some excellent cake at the residence of a reader of the *American Agriculturist*, which, from its appearance when passed, we supposed was "ginger bread," we asked for the directions, which are: Mix well together one cup sugar, one cup molasses, one cup butter, one cup of strong coffee as ready for the table, four well-beaten eggs; stir into this five cups of flour, in which a teaspoonful of soda has been incorporated, and finally a cup of chopped raisins or English currants, and bake in one or two pans in a hot oven.





### The Ghost in the Garret; or, A Thanksgiving Day Surprise.

BY ISABEL SMITHSON.

"At that moment, the clock struck," said Gertie, solemnly; and by a strange chance the clock did begin to strike just as she pronounced the words. Five little faces flushed excitedly at the sound; five rosy mouths opened in breathless wonder, and five pairs of eyes glanced around half fearfully, for Gertie had just reached the most

the house, to play such a trick; but at that moment Uncle Ben himself drove up to the gate. The little girl remembered that he had gone to town directly after breakfast, so it could not be that he was the ghost. Then Minnie and Jamie Blake came and bade Gertie good-bye, and when her friends had gone she hurried down to tea, for the bell had rung, and Gertie was always in time, ghost or no ghost. She found her little twin sisters telling papa all about it, both talking at once as fast as their tongues could move; and brother Harry, who had not been able to squeeze a word in edgewise even, waiting with his mouth open, in hopes that one of them might get tired.

Uncle Ben, who had just come home from South America in his ship, had not learned to understand the younger children's "pigeon English," so he asked Gertie to translate what they were saying, and listened in mock terror to her recital. "My advice to you, children," he said, "is not to go up to the garret at all. You might see the ghost next time!" at which they shivered all over, and then began eating bread and butter hungrily.

matter had been well talked over, it was decided that, after all, the sitting-room was the best place for telling stories, and that the ghost in the garret might have it all to himself up stairs.

The next day was Thanksgiving, and a delightful odor of roast turkey filled the house. Every one, except the baby, went to church in the morning, and after that, when the family had gathered in the dining-room, Uncle Ben showed all the treasures he had brought home in his ship, and had kept secret until to-day. Such beautiful and curious things there were! The prettiest little toys and ornaments made of tortoise-shell, vegetable-ivory, and satin-wood; stuffed birds with bright feathers, for the new winter hats; wonderful beans, butterflies, birds' eggs, and sea shells; two beautiful jaguar skins, to be made into rugs; great cocoa-nuts; jars and jars of delicious sweet-meats, and, last, but not least, dozens of pictures of places and forests in South America, to be looked at through the stereoscope. Such a lovely Thanksgiving Day treat! It took two hours to show and explain all the things, and when they were spread



Drawn and Engraved for the American Agriculturist.

"frightening" part of her ghost story. It was delightful to have the big clock in the hall strike just in the "very nick of time," thought Gertie, as she saw the change that came over the feelings of her hearers. Until now, the children had all agreed with Jamie Blake, that there was nothing to be frightened at in a ghost story, and though they were very glad to have the tale told, had tittered disrespectfully from the beginning. Now, however, they were sobered suddenly, and not a word was spoken until the last stroke of the clock had sounded; then, Gertie, in a still more solemn tone, repeated the words:

"At that moment, the clock struck," and after a moment's pause, she added: "then a voice, that came from no-one-knows-where, whispered, hoarsely—"

"A ghost, a ghost! Who's afraid?" said a harsh, whispering voice, from "no-one-knows-where," in reality! Even Gertie herself turned pale, and half started from her seat; and her listeners, not waiting for any explanation, leaped to their feet, rushed down the garret stairs, threw back the door at the foot with a crash, and tore pell-mell into mamma's room, waking the baby and knocking down all the clean clothes that were just up from the wash. Gertie came down quite as eagerly, but more quietly, wondering all the way whether it could be that there was really a ghost in the garret. Was such a thing possible, or was Uncle Ben hiding behind the trunks on purpose to frighten the children? He was just the one, and the only one in

Next morning Minnie Blake and her brother came to see Gertie again, for Jamie wanted to find out about the ghost, and so, after a long pause, at the bottom of the garret stairs, the three children went bravely up, and looked about expectantly. The large, low-raftered room did not seem half as ghostly as it had done the day before, for the morning sun was streaming in at the little window; there were no dark, strange shadows flitting about in the corners, and not a sound was heard except the waving and rustling of the tree-tops outside.

"Don't be afraid," said Jamie, sitting down on the floor, and beckoning to the girls; but, before she joined the others, Gertie looked back, to make sure that the door at the foot of the stairs had not chanced to shut since they came up. Suddenly a low, scraping sound was heard behind a pile of empty trunks, in the corner. "Rats!" whispered Jamie, knowingly; but the next instant a deep, long sigh was heard from the same corner. "The ghost!" cried the girls, both at once, and Jamie, jumping up, began pulling out the trunks, manfully. Peering eagerly into the space thus exposed, the children heard the scraping sound again, and saw—nothing! Then, while they were looking at each other in silent astonishment, a voice, close beside them, cried:

"The ghost! Don't be afraid! He! he! he!" ending with a mocking laugh, and two minutes later Gertie and her playmates were down stairs. They tried in vain to escape the other children's eager questions and expectant eyes, and when the



out on a table, it seemed as if Christmas had come already, and Uncle Ben was Santa Claus. Dinah came in with the turkey and stopped short in astonishment, while the children called to her to look at a dozen things at once, and it was all mamma could do to make any one sit down to dinner. At last, however, the meal was fairly under way, and a very gay one it was. When every one had finished, Uncle Ben said suddenly: "Well, children, how about the ghost in the garret?"—"Oh, do come up and look for him," cried his little nieces, "we shan't be a bit afraid to go with you."—"Why no, who's afraid?" said the uncle, with a roguish twinkle in his eyes, as he opened the door of the sitting-room, "but first I want to show you—" "The Ghost!" said a voice which made the children start, while Dinah ran around behind papa's chair, showing the whites of her eyes and muttering: "Law sakes, chillen, the ghost in dar, sho enuff." Then Uncle Ben threw the door wide open, and the secret was out.



"Oh, the darling little parrot!" cried Gertie, "just what we've wished and wished for—you dear, good uncle!"—"She will soon be a great talker," he said, stroking the bird's bright green and red feathers, "but now she can say only a few phrases she has picked up on the sly, as it were. For nearly five days she's been shut up behind the boards in the garret, in the slope of the roof, you know, with no one to talk to but—"

"The Ghost! the Ghost!" screamed Poll, strutting about on her perch. "Run, run! Who's afraid?"

"Why! She was just repeating our own words!" whispered Gertie to Harry, "and we were so frightened; pretty Poll, let me stroke your head."—"Don't be afraid!" said Polly, coaxingly.

### The Children's Hour.

Our children look upon the hour before bedtime as their own personal property.

When the tea-things are cleared away, we all repair to the dining-room; grandpa lays aside his newspaper, and grandma her knitting, and for a while we make the welkin ring with "Puss in the Corner," "Open the Gates," and the rest, all as fresh and dear to the children's hearts now as they were to ours twenty years ago.

Cousin Annie brought a reinforcement of games and amusements to us this fall, when she came on her yearly visit, and as we had Aunt Lucy and her three little ones at the same time, and sister Susie from around the corner with five more, these, with our own four, made a merry party indeed. We decided to devote the first half hour to the very little ones. "Who has the Button?" is a never-failing delight to them. It is amusing to watch little three-year-old Hobart's face in the grand suspense while the button is going the rounds—"Hold fast what I give you"—and the supreme moment of the day to him is when, at the call of "Button, arise!" he is able to jump up and show it in his own fat little hands.

Then they play "Rorum, Corum, Torum." All go out of the room but one, who places some small article agreed upon in the room, but though not prominent, it must be in sight. Then all come in and look around, touching nothing, only using their eyes. The one who sees it first gives no sign, but quietly sits down, calling, "Rorum, Corum, Torum." Each one, as he or she discovers it, sits down, saying the mystic words. Finally, when all have found it, the one who saw it first hides it again.

We had a new and good variation of the "Dutch Doll," which pleased the older ones as much as the children. One of the older boys laid down on the floor on his back, with his legs under the sofa, holding his hands together and high in the air. His arms were dressed in a child's clothes, with his hands for the head, stuffed so that a baby's cap could fit it, and the face made by a handkerchief marked with charcoal to represent eyes, nose and mouth. The boy's head must have a pillow on each side and a light shawl thrown over, to give him plenty of breathing room, also drapery on the sofa to hide his legs. Then the children are called in and made to stand at a little distance and ask questions, which the Dutch Doll answers by nods or shakes of the head. It can dance, go to sleep (by falling backward slowly on the sofa, or some one's lap), shrug its shoulders, shiver, or go through any number of antics according to the genius of the operator. Or it can be made a talking doll by the boy disguising his voice.

I wonder how many little ones have tried the "Cathedral Bell" with a silver table-spoon tied to the middle of a long piece of twine. Take one end of the twine in the right hand and one in the left, and hold it in each ear. Place two wooden chairs back to back, a little distance apart, and swing the spoon from one to the other, letting it strike the back of the chairs. The sound is like a sweet, deep-toned church-bell.

Perhaps hereafter I will tell you of some of the older children's games, and their tableaux, which keep them busy many a rainy day and winter evening.

FLORENCE STANLEY.

### The Bird's Nest Fungus.

Children, while at play, frequently find objects which are strange and interesting to them, and these, when brought home, become puzzles to older heads. Recently a young friend sent us some "little bird's nests," as he called them, and asked us to explain why they should be placed along the sides and between the cracks of an old wooden side walk. These little "bird's nests" are not made by any kind of bird. No known bird is small enough to be satisfied with such tiny "nests" as these. A number of these "nests" are shown, natural size, in figure 1, as they appeared upon a piece of rotten plank. The young reader may think that some other animal made the "cups" for its young. Perhaps a frog, or more likely a wasp, or some other kind of insect! It may take the young reader a long time to guess the origin of these little "nests" full of "eggs." You may be somewhat surprised, but these little objects are plants. They are very peculiar looking plants and do not at all resemble the grasses, the rose bushes or the maple trees, which grow close by the old side walk. Did you ever see a mould upon the top of a piece of cheese, or on a slice of bread or cake? If so, you saw a tiny forest of minute plants. You may have seen a somewhat similar "grove" on the top of the blacking for your boots, or even upon the boots (possibly inside), when taken from a damp place after a week of repose. Those boots may have been used to upset various toad-stools in the pasture or garden. We are approaching the nature of the "bird's nests." Do you guess what they are? If you said they were a peculiar form of a toad-stool, it would not be far from right. These little "nests" grow from small seeds called spores, and the "bird's nest" develops upon the decayed planks of the side-walk. It belongs to a large group of small plants, some of which we have mentioned. The name of the group is *Fungi*, and none of its members have leaves or flowers. The fact that some plants have no blossoms is not new to you, we presume, because all such familiar plants as mosses, lichens, and ferns, never produce any flowers. At first the "bird's nest" is very minute, but it soon increases in size and appears like a little ball fastened upon a piece of decayed wood. In a few days the top of the ball bursts open, and within is a cavity containing a number of small bodies which may be called the "eggs." You may guess that these are the seeds, or spores, of the plant. They are more than that; each one of these little bodies contains hundreds and thousands of the spores,

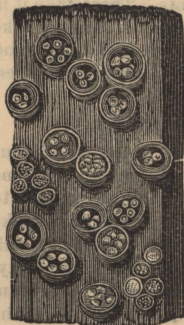


Fig. 1.—"BIRD'S NESTS."



Fig. 2.—NEST ENLARGED.



Fig. 3.—SECTION OF NEST.

which are therefore extremely small, and can only be seen with the aid of a microscope. The "bird's nest" fungus is a strange little plant, which has no flowers, and feeds upon the moisture of the decaying side-walk. This fungus may be found on rich earth and in many other places.

We wish our young readers would keep their

eyes open as they go through life. All of us live surrounded by interesting and wonderful things.



**An Illustrated Rebus.**—It is sometimes well to set a truth in an obscure form, that it may be the more clearly remembered when found.

### What Makes the Sea Luminous?

Those who travel in our northern waters in warm weather, may see at night numerous bright sparks in the water. In tropical seas these are



A MEDUSA OR JELLY FISH.

much more abundant, and even in the Gulf of Mexico we have seen this phenomenon so marked that the sea was literally one of "liquid fire," wherever it was disturbed. The appearance of this light in the water naturally suggests the inquiry as to its cause, and some of our young correspondents who live on the coast have asked in effect, "What makes the sea luminous?" On land there are, as you are aware, several insects which emit light. In the Northern States the very common "fire-fly," or "lightning-bug," a beetle, is seen flitting about in warm nights, showing a bright spark, and in tropical countries there are much more brilliant insects. The cause of this phosphorescence, as it is called, is not very well understood. Several marine animals give off a similar light, especially the jelly fishes, or Medusas. These are very variable in size, some being a foot across, while others are so small as to require a microscope to see them distinctly. The engraving gives the general appearance of these creatures, though some are more nearly globular than the one shown. They are almost transparent, and appear like a mass of jelly. Several of the smaller kinds, when disturbed by the keel of a vessel, by the paddle-wheels of a steamer, or by the stroke of an oar, emit a bright light. When very abundant, as they often are in the seas of warm countries, the display made by these minute creatures is, on a dark night, strikingly beautiful.



### The Doctors Talks.

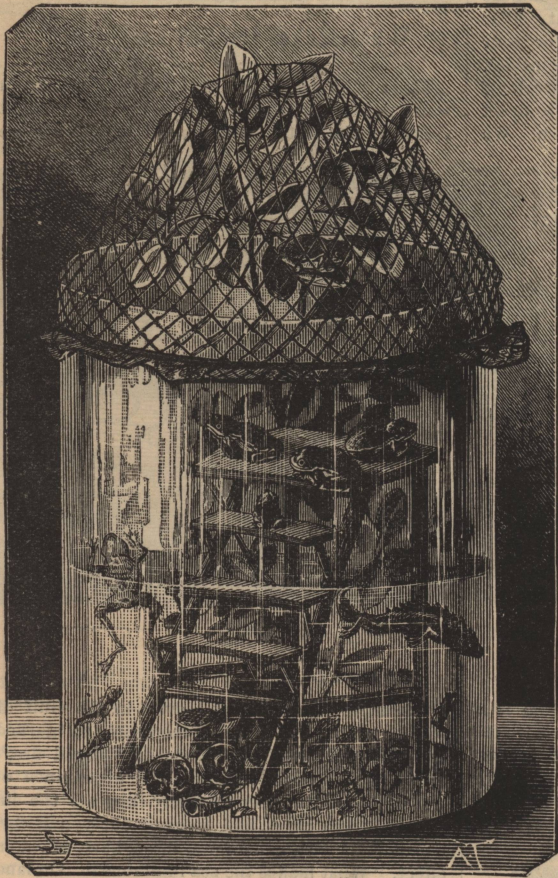
Freddie S. and Harry W. are neighbors in New Jersey, and are much interested in turtles, frogs and other animals, of the vicinity. They wish to make an aquarium for animals that live in water, and ask for the best size, and if the frame can be wood.

#### AN AQUARIUM TANK.

The frame of this is sometimes of wood, but this is often troublesome, and an iron one, though more expensive at first, is much better. But I advise not to get a square or regular tank, at least not at first, but to use a glass jar. Much about managing an aquarium can only be learned by practice, and the jar answers for this, while the animals will be quite as well off as in a more elegant home.

#### WHAT IS AN AQUARIUM?

A vessel of water holding fish, tadpoles, etc., in which water must be changed every day or two, is not a proper aquarium. Fishes and other creatures live for years in a pond, or deep pool, but in such an artificial pond, the water must be changed or they will die. To imitate nature we need plants, as well as animals in our artificial pond. In real



JAR USED AS AN AQUARIUM.

ponds, slow running streams and ditches, there is an abundance of plant-life—not the large plants growing on the margins with their roots only in the water, but if you look closely you will find a great number of plants, some of which grow entirely under the water, and others with their greater portion below the surface with a few leaves floating above. If we place such plants in our artificial pond, all will go well and we need not change the water to keep our fish, etc., alive.

#### PROCURE A GLASS JAR.

The larger the better, though a two-quart one will afford much amusement. Place in the bottom an inch or so of clean pebbles, or coarse washed sand, that from the river-side is best, and fill up with river or brook water, or if neither of these is at hand, use rain-water. Now get some of the plants that grow wholly under water, wash them, tie small stones to the lower ends to sink them, and place them in the jar; let all stand for a few days, or until the water is perfectly clear.

#### ADD ANIMAL LIFE SLOWLY.

Begin with snails from ponds and ditches, and a few tadpoles—funny fellows they are—and when all has gone well for some days you may add a very small fish or two. Frogs and turtles breathe the air, and you must so arrange that they can leave the water. The engraving of a Frenchman's aquarium for frogs, shows how he provided a ladder and branch of a tree—willow will answer—to give them exercise, and all is covered with a net to prevent escape.

#### PLANTS AND ANIMALS.

These are necessary to one another in the aquarium. Perhaps Freddie and Harry are not old enough to understand the whole story, but they know that fishes, tadpoles, and some snails can live entirely under water. They breathe the water, or more properly the air, dissolved in the water. When these are confined in a jar of water, after they have taken out all the air it contained—breathed it out—they will become uneasy, go to the surface and try to breathe the air and if not given fresh water will soon die. Of the air dissolved in the water only a small part of it is life supporting. This is *Oxygen*, not a hard word for my young friends to learn, especially as their lives depend upon having a constant abundance of it. Oxygen is that part of the air which keeps Freddie and Harry alive, and sustains the lives of all other animals. In breathing air we use up the oxygen, and we return to the air a deadly poisonous gas, *carbonic acid*. A man or other animal shut up in a close, tight box, or small room, would soon die; the oxygen would be used up and the gas breathed out would soon cause death. Animals that live in the water breathe more slowly, but in time, they take all the free oxygen out, giving back this very poisonous gas.

#### WHAT ABOUT THE PLANTS?

Plants growing in the water give out to it oxygen, just what the fishes, etc., need, so if we have enough plants and not too much animal life in the water, our artificial pond, or aquarium, will keep on for years, without need of changing the water. Where do plants get their oxygen?—a very proper question. The carbonic acid the fishes, etc., give out in breathing, is just what the plants need. This is in part oxygen, so united with something else as to make a deadly poison to animals, while it is just the life of the plants. These take it in through their leaves, split it up, or take it apart, so to speak, and send the good

oxygen back into the water to keep the fishes, and all other animals alive.

#### JUST LOOK AT THE ARRANGEMENT.

We have plants and animals, fishes, etc., in our jar, both in water. The animals are all the time taking oxygen out of the water, and giving back to it a deadly-poison (carbonic acid). The plants take up this poison, which would otherwise kill the animals, and in return give out the life-sustaining oxygen to support them. Can anything be more beautiful? Your little jar, which should now be all the more interesting to you, shows in a small way the round of life in the ponds and other bodies of water.

#### A PRACTICAL POINT HERE.

In managing your jar, do not have too many animals, fishes, snails, etc., for your plants. This can only be learned by experience, but if the plant life and animal life are in the right proportions, the plants and animals will give to each other what they need year after year. THE DOCTOR.

### A Clever Chinese Toy.

The Chinese make many toys, but none are more amusing than that shown in figure 1. No doubt the Chinese have a name for it, but not knowing what it is, we will call it "The Acrobats." The box in which the toy is packed is so arranged as to form several steps when it is pulled out. The acrobats are two, and apparently have hold of two long poles between which they stand. Unlike the Chinese women, these men have enormously large feet; they need these to keep them steady in their performance. To make them perform, the steps are arranged, and the two figures

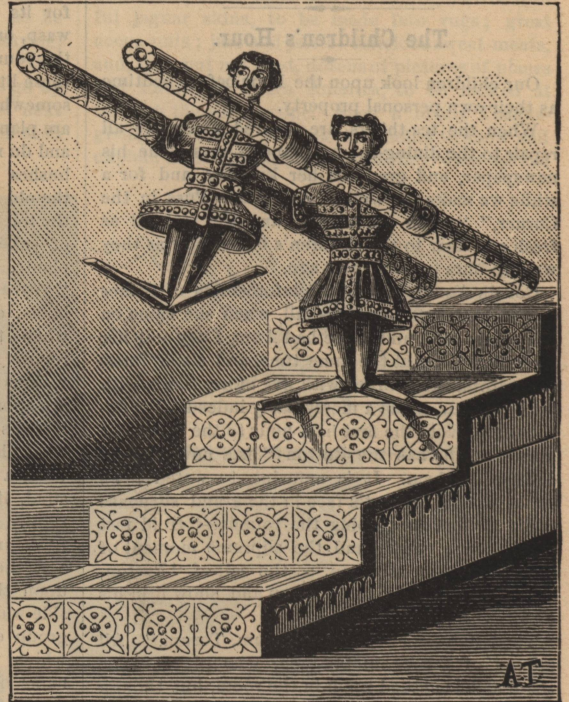


Fig. 1.—THE CHINESE ACROBATS.

with their poles are placed at the top. The rear acrobat goes up, turns a summerset between the poles and lands on the step below; the other then repeats the same performance, and over they go, one after another, until the bottom is reached. By building up other steps of the same size the tumbling may be greatly prolonged. "How is it done?" you will ask. This is shown in figure 2, where you will see that the poles used by the acrobats are hollow. In each of the holes is placed a little quick-silver or mercury (*b*), which you no doubt know is a heavy liquid metal which runs as readily as water. When the mercury runs down towards the

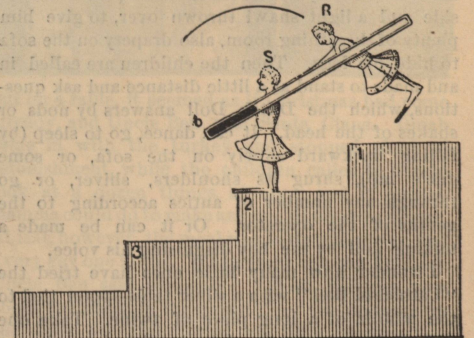


Fig. 2.—HOW THE ACROBATS ARE MADE.

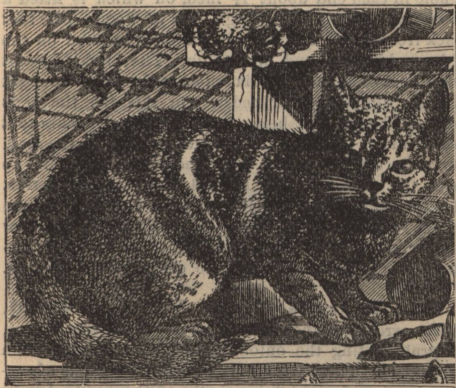
figure *S*, its weight lifts the other (*R*), and he lands on the step below; this brings the poles in a slanting position again, the mercury runs to their lower ends and by its weight, sends over the rear figure in the same manner, and so on until both are on the same level. At first sight this life-like motion of the big-footed figures is very puzzling, but it is very simple when you know how it is done.



### Our Cat with Scarlet Fever.

Below is a portrait of our "Becky," a family pet—a mixture of tabby and tortoise shell,—with the silkiest of coats and the sweetest of tempers. Her ways are always winning, and sometimes remarkable, but the feat which has made her famous is—catching scarlet fever.

Many persons do not believe that a cat can take disease from a human being, but this cat did it most undoubtedly, and was very seriously ill for more than a week. It began by her insisting on visiting the patient, her young mistress, though the latter was too ill to notice the little animal lying on the bed, and when at last Becky was forcibly driven from her post, it was too late, for customary symptoms of the disease plainly showed themselves. She was taken violently sick, and her throat and tongue became so inflamed that she could not swallow; (no one thought to find out whether there was a rash under her fur), but at all events she grew thinner every day, as she could neither eat nor drink, and the physician in attendance prescribed for her an easy death by chloroform. However, some one suggested putting hot poultices on her throat, as this treatment gave great relief to the human patient, and accordingly flax seed meal was applied, Becky submitting without a struggle. Sometimes it seemed as if the



poultice was hot enough to scald her, but she bore the heat bravely, evidently knowing what it was for.

One morning, the person who took charge of the poultices, was awakened before light, by puss, who, after "clawing" her vigorously, went to the table under the gas-burner where the linseed was heated, and sat looking up wistfully. It was very evident that she wanted a hot poultice, for the one last put on was quite cold, and after obtaining what she had come for, Becky went down stairs again contented.

In a few days she was convalescent, and spent most of her time before the fire in the invalid's room, making weak attempts to lick her coat, which through neglect had lost all its gloss.

The first sign of returning appetite showed itself when she endeavored to eat the cork of the cod-liver-oil bottle. She probably thought it would give her strength, she being a reflective cat—and particularly fond of fish.

This case of scarlet fever is an absolute fact, as can be certified by several witnesses.

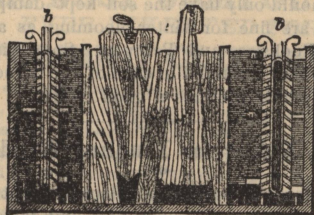
### Bees for Boys.

A farmer friend has sixty colonies of bees, a fine flock of light Brahma fowls, and a farm of one hundred and twenty acres. He has two sons, aged thirteen and sixteen years respectively, and the elder boy has entire charge of the bees, of which he is very fond. He runs his sections, extracts the honey, introduces queens, divides his bees, and rears queens with a skill which many a veteran might envy. He is already well known in the city, three and a half miles distant, for his honey, and talks about bees, and quotes authorities in the most intelligent manner. All his honey is sold in one grocery-store, and though he has had a good yield this season, and has reaped a fine profit, he cannot fully supply the demand at the store.

### New Farm Implements and Appliances.

#### The Wedge Press.

The earliest form of a powerful press, for extracting oils from seeds, juices from fruits, etc., was the Wedge Press. Although the screw and hydraulic presses have taken its place to a great extent, this press is still in use in some parts of Europe. It is very powerful, and at the same time inexpensive, though its capacity is limited, since a wedge cannot act through a considerable space. As farmers and others sometimes need a powerful press, we give an engraving of the usual form of



the wedge press to suggest the manner in which they can construct a home-made affair. The material to be pressed is placed in bags of hair cloth, *b*, *b*, each of which is between two iron plates, which are perforated with holes and grooved, to allow the oil, juice, etc., to run out and pass below. The box which contains the whole must of course be very strong, and secured by iron rods running lengthwise. The spaces between the iron plates are filled in with blocks of various sizes and shapes, and the pressure applied by blows with a maul upon the wedge *w*. To relieve the press, an inverted wedge, *i*, is provided; a few blows upon the top of this will unlock the whole. The box is made tight, and the expressed liquid is drawn off from the bottom. A contrivance on this plan may, in the absence of a screw-press, be made useful to separate the last portions of lard from the scraps, and for other farm and household purposes.

#### A Hand Protector.

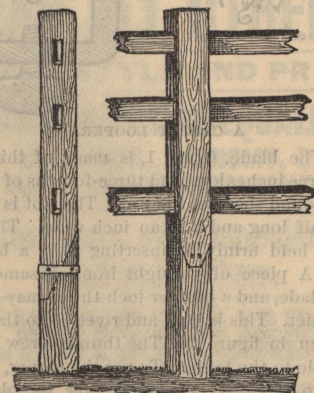
A cover for the thumb and forefinger is shown in the engraving. A belt of the same material



passes around the hand, and thus secures the protector in its place. The material of the model sent us, from which the engraving was made, is a heavy cloth. Leather could be used in like manner and is more durable.

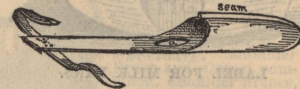
#### Splicing Fence Posts.

There are places, as crossing over gullies, etc., where unusually long posts are desirable, though



not always easy to obtain. In such cases properly spliced posts are almost as durable as entire ones. The engraving of the front and side views shows how the splice may be made to secure

strength and durability. The splices should be made with a shoulder at the lower end, and well nailed together, after which one or two bands of hoop-iron may be passed around the splice and securely fastened. The hoop-iron band is one of the most important points in a splice of this kind.

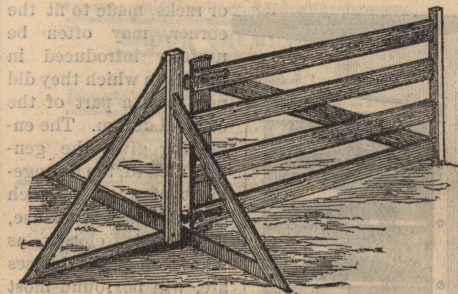


#### A Finger "Stall."

Mr. A. C. Swartz, Girard, Ky., sends us a sketch and description of a Finger "Stall," made in the usual way, but with a hole cut at *a*, as shown in the engraving. The finger is first passed through this hole, bringing the seam upon the back of it. Such a covering for a sore finger is much more secure and comfortable than the ordinary "stall."

#### Device for Gate Post.

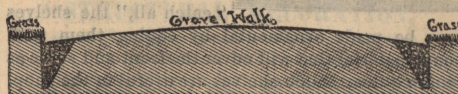
Mr. "S. C. C.," St. Louis, Mo., sends us a description of a post, or rather a device to keep it from sagging. It consists of a triangular lever. The sill piece rests upon the ground, and its inner end abuts against the post. One end of the inclined



piece is secured to the post at or near its top, and its opposite end is fastened to the sill piece at or near its outer end. A heavy stone may be placed upon the sill piece, between the joint of the two members and the post, to make the post secure.

#### To Keep Grass from Walks.

Mr. John Barker, Calais, Me., adds an item to our article on "Edgings for Gravel Walks," in the



#### SECTION OF GARDEN WALK.

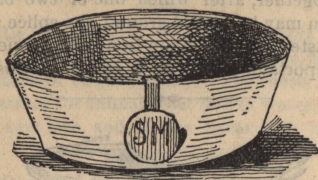
September issue. He writes: "It is often said that I have the best walks and lawns in town. Where the edge of my walk comes to the grass, I cut out the earth, as shown in the engraving, and place in sifted hard coal ashes. This stops the grass roots at the edge. My main walk is over a hundred feet long, and for the last five years it has not taken three hours of labor to keep the edges, on both sides, neat and clean. I have a good deal of witch, or quack grass, and to stop it at the edge of a garden, or under a line fence, I dig a trench six inches wide and deep, and have no more trouble with the pest." This is shown in the engraving.

#### A Device for Milk Pans.

All house-keepers know how very difficult and perplexing it is to judge of the age of milk set in pans at different milkings, without turning up the cream, with a knife, spoon, or finger, or blowing it to ascertain the thickness of the cream. Some years since my wife devised the following method. One of her boys cut her a set of cards, of suitable shapes; one set for morning, of white cards, and another for evening, of red cards, of the same shape.



The set for morning was marked with S. M., for Sunday morning; M. M. for Monday morning, and

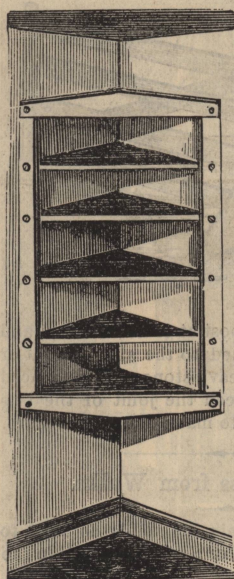


LABEL FOR MILK PANS.

soon. The red cards were marked in a similar manner; for night, N. was substituted for M. A small wire was run through two holes in the top of each card and bent over to form a hook. In the morning when the milk is strained, a white card is hooked on each pan, in the evening a red one. When the shelves are full, one has only to glance at the labels, to ascertain just the age of each pan of milk. It is but little trouble to remove the label when the milk is used, and hang it on a wire, stretched convenient to the table.

### Corner Shelves.

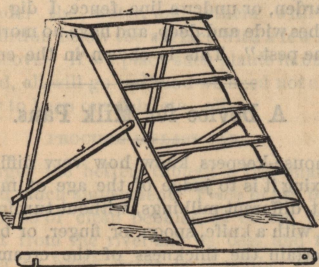
In the old style of domestic architecture, the corner cupboard was quite common. Indeed, it was built into the house, and was a conspicuous feature, at least, of the drawing-room. Shelves,



or racks, made to fit the corner, may often be usefully introduced in houses in which they did not form a part of the original design. The engraving gives the general idea of the arrangement of a set of such shelves, which in a house, lacking in closets, as many modern houses are, will be found most useful, whether in kitchen, dining-room, or sitting-room. The essentials being provided, the sides and the triangular shelves, the affair may be perfectly plain, or highly ornamental, according to the use to which it is to be put. In the sitting-room, where it will, no doubt, serve as a "catch all," the shelves

### A Convenient Step-ladder.

Mr. W. P. Hope, Kalamazoo County, Michigan, sends us a drawing of a step-ladder. The side pieces are six inches wide, any desired length. The top step is one foot wide and two feet long. The pieces nailed to the sides are six inches wide. The braces are two and a half inches wide, the length is proportionate to height of ladder. The posts are two and a half inches wide and one and a half inch



STEP-LADDER.

thick, fastened to the upright with a pin. A brace, showing the notch to go on a pin in the posts is

seen below in the engraving. This step-ladder, when not in use, can be quickly folded and hung up on a good strong nail out of the way.

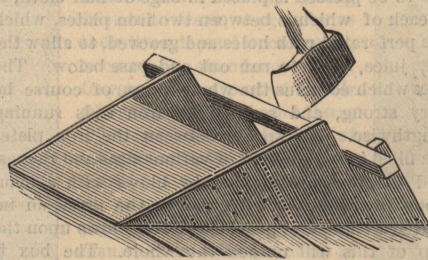
### A Home-Made Flower Stand.

A very pretty flower stand can be made out of a table, a bucket, and half a dozen old tin cans. Place the bucket in the centre of the table. Punch several holes in the bottom of each can, and screw them firmly to the table by screws in the holes.

Arches of stout wire may be made across the top of the cans. For ferns planted in the cans, which require a great deal of water, cover the top of the table with a shallow pan to catch the drip. Other plants should only have the soil kept damp. Geraniums are fine for winter blooming, as are also Coleus, Fuchsias, and Petunias. Some kind of a vine should be planted in each of the corner cans. Trailing plants produce a good effect.

### A Holder for Kindling-Wood.

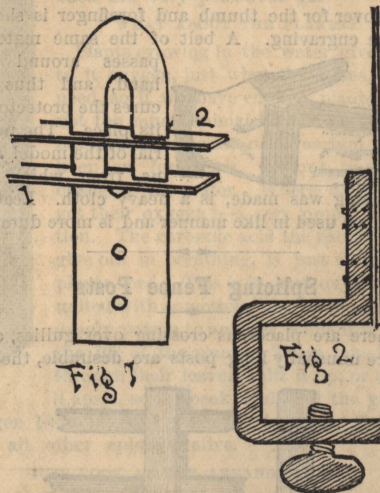
Two pieces of hard wood plank are cut for the sides, as shown in the engraving, and fastened on opposite ends of a block of wood. The small pieces of wood to be broken are placed in the notches, where they are struck in the middle with



the axe. The slanting top of the middle-piece of the holder may receive one foot of the chopper. The holder may be used as a splitting-block.

### A Carpet Looper.

Mr. H. Hudson, New Britain, Conn., sends us a sketch of a device for joining the ends of carpet



A CARPET LOOPER.

rags. The blade, figure 1, is made of thin sheet steel, three inches long and three-fourths of an inch wide, ground sharp at the top. The slot is an inch and a half long and half an inch wide. The blade may be held firmly by inserting it in a block of wood. A piece of wrought iron, of same width as the blade, and a quarter inch thick, may be used as a holder. This is bent and rivetted to the blade, as shown in figure 2. The thumb-screw fastens the whole to the table. To use the looper, one end of a strip of cloth (1) is thrust over the blade. A second strip is put on with the short end in the opposite direction, and the long end of the first strip (2) is put through the slot, after which the whole is lifted off and the knot pulled up tight. The operation of looping can be quickly and easily done.



**Crab-Grass in the Lawn.**—We have received inquiries from friends in many different States, concerning crab-grass in their lawns, and asking how they shall get rid of it. Crab-grass is an annual, and only appears about mid-summer. The first step should be to occupy the ground with perennial grasses, and leave little or no room for the intruder. All thin places on the lawn should be scratched with a sharp rake, and an abundance of the seeds, of the kind used in making the lawn, should be sown, using the roller afterwards. If crab-grass appears, mow the lawn, and sweep up and burn the clippings, to prevent any of the seeds from ripening. With proper care, this pest of the lawn in autumn may be entirely subdued.

**A Travvois.**—W. J. Rockburn, of Quebec, writes us of this implement used by his French neighbors for drawing fence rails, or any light timber which one horse can haul out from among fallen timber. It is made with two poles, about four inches in diameter, and twelve feet long. Four feet from the butt ends is bored a hole in each end about 1 1/4 inch, on which is fitted a cross-bar, made of some tough kind of wood. One foot back from this is a bunk, or cross-box, squared on the sides and bottom, and pinned on. The bunk is about four or five inches in diameter, made of some light timber, like spruce or cedar. On this the timber is placed, when hauled, being fastened with the chain that passes under the bunk and up over the top of the load, down the other side, and back under the bunk, and up over the cross-bar, and hooked into the whiffletree. This is a very useful article in the woods, as a horse can take a load over small logs. The ends of the rails or timber rise with the travvois. The end of the implement not attached to the horse drags on the ground.

**Cut Worms.**—Mr. J. M. Haight, Shelby, Mich., writes us that he is much troubled with worms, or grubs, eating the onions and nearly all other garden vegetables. These worms are probably the larvae of several species of night-flying moths of the genus *Agrotis* and related genera. They are all much alike in appearance and habits. The moths, seen in late summer, are of a sombre gray, or brown, with an expansion of wing of an inch and a half. When at rest the wings close flatly over the body, the upper ones having a circular and a kidney-shaped spot. These moths fly in cloudy days, and often enter the house at night, attracted by the light of the lamp. The eggs are deposited in late autumn upon plants near the surface of the earth. These soon hatch, and the grubs, or cut worms, enter the earth and feed upon the roots of various plants. As cold weather approaches, the worms go deeper and remain in a torpid condition all winter. They return to the surface in the spring, and, with an appetite sharpened by a long fast, they voraciously eat any succulent plant. Cut worms feed by night, and hide in out-of-the-way places by day. They have a greasy appearance, being plump, smooth, and of some shade, green, gray, or brown, variously marked. When disturbed they coil into a ball. The full-grown worm descends into the soil and forms an earthen cocoon and becomes a chrysalid. In late summer the moth comes forth, and the cycle of transformations is complete. There are several natural enemies of the cut worm. Ichneumon and other flies deposit their eggs within the worms, and thus destroy them. The cannibal beetles and some spiders feed upon them. Birds and chickens are fond of the fat, greasy cut worms, and will pick them up greedily on plowed ground. One of the best methods of ridding an infested soil of this pest, is to plow it late in the autumn. This turns up the sluggish worms from their winter quarters, and either kills them by exposure or furnishes a food for the chickens and birds. Other insects are destroyed the same way.

**Experiments with Wheat.**—Prof. J. W. Sanborn has tested many varieties of wheat upon the farm of the Missouri Agricultural College, and from the results he constructs the following table:

Wheats.	Per Acre.
White, 20 varieties; average for 3 years,	34.5 bushels.
Red, 20 " " " "	27.1 " "
Amber, 7 " " " "	27.2 " "

The Amber wheats were mostly grown in 1882, and the number of varieties is small, so that these results do not fully prove that White wheats are the most productive in that soil and locality. More experiments are needed.



From the Toledo Weekly Blade, September 13, 1833.

**HON. DANIEL F. BEATTY AND HIS ORGANS.**

Elsewhere in this week's "Blade," our correspondent, "Pietro," gives a spirited and graphic account of Hon. DANIEL F. BEATTY, of Washington, N. J., and his famous manufactory of organs and pianos. Mr. BEATTY is an example of what a man may do who has energy, determination, will, and brains. From a poor boy from a mountain farm, he has ascended the ladder of fame and fortune till he is not only one of the most extensive manufacturers in the world, in his line, but one of the wealthiest and most influential citizens of his State and country.

The thousands of inquiries received concerning the Beatty Organs compelled the sending of a reliable correspondent to Mr. BEATTY's home, and the result will be read with interest. Of one thing the "Blade" readers may be sure: Mr. BEATTY is a substantial fact, his business is conducted exactly as he represents it, and those having dealings with him may be sure of fair, honorable and liberal treatment. There is no question about his responsibility, any more than there is a mistake in his original method of conducting his business.

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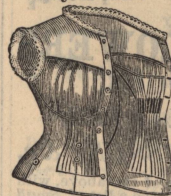
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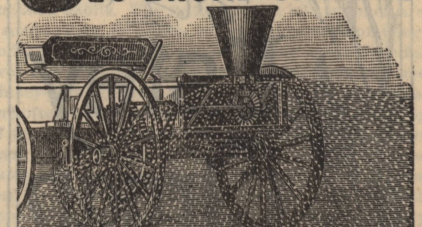
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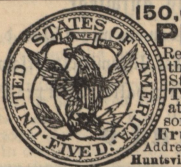
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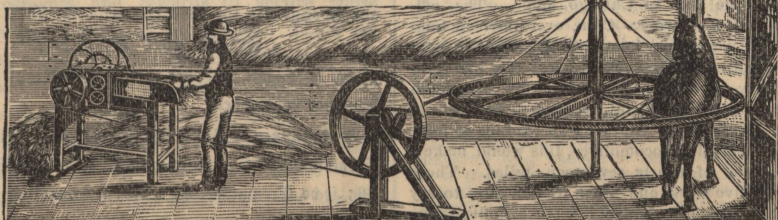


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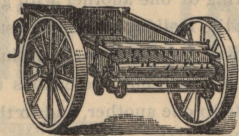


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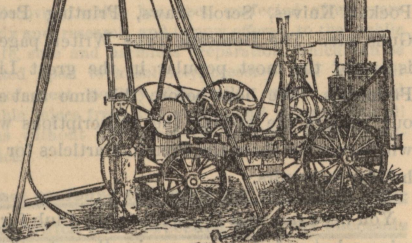
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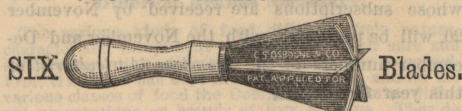
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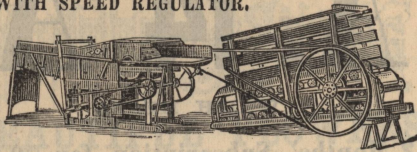
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## HEEBNER'S PATENT Level Tread Horse Power WITH SPEED REGULATOR.



### Heebner's Improved Little Giant Threshing Machine.

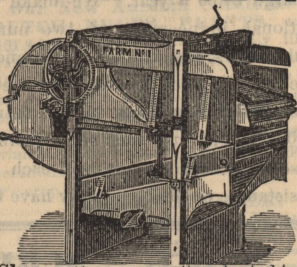
No other Power is as powerful and easy for the horses. The Level Lags and Speed Regulator are the most valuable improvements ever made in horse powers. See that you get Heebner's, any other with level lags will be an infringement upon our patents.

The Little Giant has more good points than any other Thresher. None can do work as fast, nor any better, and none are better made. Union Feed Cutter, Drag and Circular Saws, etc. Send for Illustrated Catalogue.

HEEBNER & SONS, Lansdale, Pa.

## CENTENNIAL FANNING MILL.

The best mill in the world. It separates Oats, Cockle and all foul stuff from wheat. It is also a Perfect Cleaner of Flax, Timothy, Clover, and all kinds of Seeds. The great improvement over other mills is that it has Two Shoes. It is especially adapted to warehouse use. Send for descriptive Circular and Price-List.



S. FREEMAN & SONS, Racine, Wis.

## THE OLD RELIABLE HALLADAY STANDARD WIND MILL 27 YEARS IN USE.



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Superior to any other make. 17 Sizes—1 to 40 H. Power Adopted by U.S. Gov. at forts and garrisons and by all leading R. R. Cos. of this and other Countries. Also, the

### Celebrated I X L Feed Mill,

which can be run by any power and is cheap, effective, and durable. Will grind any kind of small grain into feed at the rate of 6 to 25 bushels per hour, according to quality and size of mill used. Send for Catalogue and Price-List. Address

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## The Watertown WINDMILL

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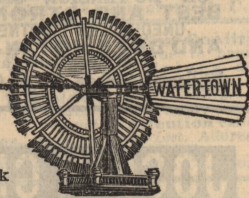
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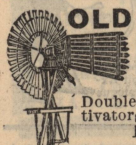
& Sons, Watertown, N. Y.



## 7,000 CHALLENGE WIND MILLS.



IN USE IN EVERY State and Territory of the U.S. It is a sectional wheel, has been made by us for 15 years, and has never blown down without tower breaking, a record no other mill can show. MILLS SENT ON 80 DAYS TEST TRIAL. BEST FEED MILLS, CORN SHELLERS, ETC. GOOD AGENTS WANTED in all unassigned territory. Catalogues free. CHALLENGE WIND MILL AND FEED MILL CO., Batavia, Kane Co., Ill.



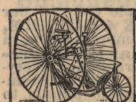
### OLD RELIABLE STOVER.

We manufacture the Stover Pumping Windmill, as well as Geared Windmills of all sizes, for running Grinders, Shellers, Saws, etc. Also Feed Grinders, operated by Pumping Windmills. Corn and Cob Double-faced Grinders with Sweep, and Corn Cultivators. Write for Catalogue and Agencies.

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OVERMAN WHEEL CO. HARTFORD, CT.  
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## A Beautiful Custom. Christmas and New Year Gifts.

It is a beautiful custom, prevailing in all civilized lands—the remembering of one another with gifts and souvenirs during the Holidays. It is a custom which has come down from the earliest times. Not only the ancient Romans, but the Saxons and Druids presented gifts to one another, and to their rulers. Under the Cæsars, the giving of presents at this season of the year became so expensive a luxury, that Claudius limited the amount and number by an official decree. In some villages of Germany, parents send all their holiday gifts intended for their children to one person, who, “in high buskins and white robe and mask, and an enormous flaxen wig,” goes from house to house and gives them out to the children according to their merits, as narrated to him by their parents, who receive him with great pomp and reverence.

We are glad that the custom of giving holiday gifts is increasing every year in this country. The beautiful **Premium List sent out** with the October *American Agriculturist*, enables every Father, Mother, Brother, Sister—everybody, to get these presents for one another without money and with little labor.

There is a great variety of articles from which to select, including Books, Jewelry, Time Pieces, Silverware, Musical Instruments, Microscopes, Pocket Knives, Scroll Saws, Printing Presses, Guns, etc. The Domestic Type Writer, page 495, is one of the most popular in the great List of Premiums. We hope before this time that all of our readers are getting the subscriptions which will secure for them the Premium articles for their holiday souvenirs.

You need not wait to complete the Club for Premiums, but as fast as you receive the subscriptions send them to us, so that the parties may receive their paper without having to wait. We will give each credit on Premium account for all subscriptions received, and when one has completed the Club, we will send the Premium forthwith.

Remember that all new subscribers for 1884, whose subscriptions are received by November 20, will be presented with the November and December numbers of the *American Agriculturist* of this year **free**.

**Enormous Grain Receipts.**—We have hitherto referred to the great amount of corn kept back by farmers, and especially so in Kansas, in hopes of higher prices. Large amounts of money have been borrowed on this corn, often as high as at two per cent a month. The good prospects for the crop of this year have blighted the hopes and expectations, and this old stock, with portions of the new crop, are now being rushed into market. The same remarks apply in part to other grains. As an illustration, take the receipts for a single day in the City of Chicago alone. The official returns of receipts were: Corn, over thirteen hundred car-loads; wheat, four hundred and thirty-two cars; oats, three hundred and seventeen cars; rye, one hundred and thirty-six cars; barley, thirty-nine cars; total, two thousand two hundred and twenty-four car-loads of grain for a single day! Allowing an average of forty feet per car, including locomotives, this would make a continuous train of nearly seventeen miles. These grain cars, the live stock, and other freight cars, to say nothing of those bringing human live stock, indicate the enormous business centering in a single city not half as large as New York.

## Amerikanischer Agriculturist

Der Amerikanische Agriculturist ist ein umfangreiches, prächtig ausgestattetes

### Illustrirtes Familien-Journal.

Er ist den Bedürfnissen, Wünschen, Liebbereien, sowie auch der Belehrung jedes Mitgliedes der menschlichen Gesellschaft gewidmet und voll praktischer, nützlicher, interessanter und zuverlässiger,

### gründlich unterweisender Information

für Jedermann (Mann oder Frau), für Jung und Alt.

Jeder Band enthält ungefähr 600 künstlerisch durchgeführte, mit äußerster Sorgfalt gedruckte Original-Illustrationen auf feinem Papier, welche zugleich belehrend und unterhaltend sind.

Niemand kann einen Band lesen, ohne aus dem überaus reichen, mannigfaltigen Inhalte Tausende von praktischen Winken und Anregungen zu neuen Ideen zu gewinnen, welche ihm nützlich oder angenehm sind, und von denen

eine einzige den geringen Preis eines Jahresganges mehr als aufwiegt.

Die unbedeutende Ausgabe von ein wenig über drei Cents per Woche kann auch der Unbemittelte erschwingen; es macht das noch nicht einen halben Cent pro Tag!

### Weshalb

der Amerikanische Agriculturist bedeutend mehr und gebiegenderen Lesestoff, ferner zahlreichere, künstlerisch feiner durchgeführte Illustrationen zu geringerem Preise bieten kann, als irgend ein anderes Blatt:

Die namhaften Geldsummen, welche auf die seit 36 Jahren bestehende englische Ausgabe des Amerikanischen Agriculturist verwandt werden und sich für Beschaffung von Illustrationen, nützlicher, erprobter Belehrung (betreffend den Land- und Gartenbau, sowie der Haushaltung etc.), nebst andern dahin zielenden werthvollen Lesestoff, allein auf \$20,000 pro Jahr belaufen, das Geschäftslokal, Personal etc.—Alles steht der deutschen Ausgabe unentgeltlich zur Verfügung!

Es wäre unmöglich, wenigstens würde es nicht gewinnbringend sein, für die deutsche Ausgabe alle in solchem Opfer zu bringen.

Dass die Wünsche und Rathschläge des Amerikanischen Agriculturist über Acker- und Gartenbau, Hauswirtschaft etc. Alles sind, was verlangt wird und Bedürfnis bildet, beweist die Thatsache, dass der American Agriculturist die bei Weitem

### bedeutendste Verbreitung

unter allen ähnlichen Blättern der Welt besitzt und dass sich sein Leserkreis noch täglich erweitert.

### Ein prächtiges Bild für jeden Abonnenten.

Jeder neue Abonnent des „Amerikanischen Agriculturist“, dessen Subskription vor dem 1. November eingeht, erhält die Oktober, November und Dezember Nummer dieses Jahres frei. Ebenfalls erhalten alle Abonnenten für 1884 das prächtige Bild

### „Feinde oder Freunde?“

11 bei 18½, wie auf der dritten Umschlagseite dieser Nummer beschrieben.

**Bedingungen.**—Ein Exemplar \$1.50 pro Jahr; drei Exemplare, \$4; vier Exemplare, \$5; fünf Exemplare, \$6; sechs Exemplare, \$7; sieben Exemplare, \$8; acht Exemplare, \$9; zehn und mehr Exemplare, \$1 jedes. Alle portofrei.



# HOW TO SAVE & MAKE MONEY.

We are constantly in receipt of such letters as the following:

## A Ten Years' Subscription.

SUNBURY, Pa., Oct. 6, 1883.

*Publishers American Agriculturist:*

DEAR SIR:—Enclosed please find Post Office order for fifteen dollars. My present subscription expires with the December number. Yours truly, H. LONG.

RUGBY, Tenn., Sept. 25, 1883.

I am grateful for the many good things received through the *American Agriculturist* during a ten years' trial of it. Yours truly, M. S. PERCIVAL.

STANWOOD, Iowa, Sept. 26, 1883.

I am better pleased with every number of the *American Agriculturist*. Yours truly, J. W. BARCLAY.

BADEN, Pa., Sept. 28, 1883.

Please continue my subscription to the *American Agriculturist* indefinitely. It is the best paper of the kind I have ever seen. Yours truly, C. W. CAMPBELL.

JUSTUS, LACK'A Co., Pa., Sept. 24, 1883.

DEAR SIR:—I write you a few lines to inform you how much I esteem the *American Agriculturist*. I have taken it sixteen years out of seventeen, and find it invaluable. I think it the best agricultural paper that I am acquainted with; it has saved me many times its cost in following its teachings. For instance, it was through the *American Agriculturist* that I was first induced to set milk in deep pans, saving me in time and money probably one hundred dollars. I have also got a fine lot of thoroughbred poultry, from which I make a good profit, mainly through the teachings of your paper, and I could name many other things where it has saved me ten times its cost. You may count me a life-long subscriber, and I shall endeavor to aid you in increasing your subscription list as much as I can.

Yours truly, GEO. F. MILLER.

William M. Bradley writes us from East Bloomfield, New York, as follows:

There is not a single number of the *American Agriculturist* but contains one or more suggestions worth more than the whole year's subscription. It is hailed in our home, by the youngest as well as the oldest, as a most welcome and delightful visitor. Long life to the *American Agriculturist*, and may it continue to do good and enlighten the minds of the farming people, and make farming a delightful and educating, as well as a remunerative calling."

There are hundreds of thousands of farmers all over this broad land to-day, who have both saved and made money through the hints, suggestions, and general information which they have obtained in the columns of the *American Agriculturist*. It is a medium through which subscribers make known to each other new facts, new labor contrivances, etc., etc. Furthermore, we have a very able corps of Editors and regular contributors, who are paid by us to gather information for the benefit of our readers. We venture to say that every subscriber of ten years will tell you that he has saved and made ten times ten dollars and a half from reading the *American Agriculturist*.

There is still another way in which you can make money; viz., by securing subscribers for this paper. Every present subscriber has neighbors and friends who can readily be persuaded to take this paper.

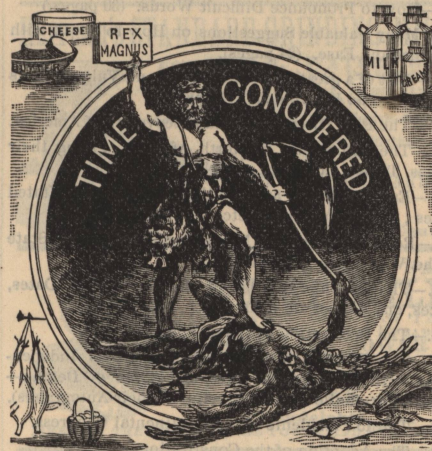
We offer in the way of Premiums the best of inducements and rewards to secure those neighbors and friends as subscribers. There are very many people all over the United States who earn these Premiums in this manner and turn them into cash, thereby making good wages during the autumn, winter and spring months. A single person in Illinois, last year, sent us over three thousand subscribers, receiving in return a vast number of Premiums from us. In this great Premium List you will find very many useful articles for your

Farm, Garden, and Household, which you will wish to keep instead of turning into cash.

The necessary Sample Copies, Circulars, and an extra Premium List, if desired, will be sent to every person who desires to canvass for subscribers.

Publishers of the *American Agriculturist*.

## Milk and Cream.



## INTERESTING TO DAIRYMEN

REX MAGNUS, the Humiston Food Preservative, is a new discovery, which has been perfected after years of study and research, and is now offered to the public as a safe, sure and harmless preparation, which can be depended upon to absolutely preserve and keep all kinds of meat, poultry, fish, milk, cream, eggs and vegetable juices fresh and sweet in all climates and all seasons without any alteration in their taste or appearance.

**Do not confound this with the worthless compounds which have preceded it. This succeeds where all others have failed.**

There have been at different times several worthless mixtures offered to the public which have pretended to accomplish this great result, but they have signally failed. This is probably because their projectors have tried to preserve everything with one compound. A really scientific man would know better than this.

### Different Brands Necessary.

The various kinds of food differ in their nature, character and component parts, and for their sure and safe preservation different antiseptics are required. Prof. Humiston has kept this point in view, and for the various classes of food the Company makes nine different preparations or brands of REX MAGNUS. They do not claim that what is designed for one thing will preserve another, nor do they claim for any of their preparations any more than they will perform.

### A Solid Test.

Prof. Samuel W. Johnson, the noted chemist of the Scientific Department of Yale College, procured cream from a farm 3 miles north of New Haven, Conn. It had been collected and saved from five milkings of the three days previous, and was, therefore, being so mixed, difficult to keep.

### How It Was Done.

A pint of this was treated with "Pearl," a special brand of Rex Magnus, adapted specially for the preservation of cream. After treatment it was placed in a glass jar and sealed, at 3 o'clock of the afternoon of January 31st, 1883, and at 5 P. M. (or 2 hours later) of the same day, the untreated portion of this cream was found to be sour!

### Seventeen Days Test.

At the banquet held at the New Haven House, 17 days thereafter (long enough to send all over Europe), this jar of treated cream was opened, and the contents were (with the exception of a slight mold on top) found to be perfectly natural and sweet, whilst it rendered the coffee luscious. The average temperature of the apartment (Prof. Johnson's private laboratory) in which this cream underwent this test, was 70° Fahr.

### Keeps Thirty to Fifty-Nine Days.

Edward Burnett's Deerfoot Farm cream has been sent to Europe to different responsible people, who report that from thirty to fifty-nine days after it was treated with "Rex" in Boston, it was eaten in England, Italy and Switzerland *sweet and perfect!* Six jars were consecutively opened and used by Joshua Blake, Esq., of Boston, on a recent trip to the Mediterranean, in the steamer Archimede, of the Florio line of Italian steamers, and the last was as good as the first.

### A Great Want Supplied.

REX MAGNUS supplies the great want felt by dairymen. It will keep the milk fresh and sweet for a week or longer until it is used. It will keep the cream as shown above. It will keep the butter so that it will reach the consumer in just as fine condition as when it leaves the dairy. Hundreds of tons of butter every year become rancid and are sold for grease. This loss all falls on the producer, and it may be avoided by the use of Rex Magnus.

### Tasteless, Harmless, Simple.

It is perfectly harmless, and imparts no taste whatever to the articles treated with it. The use of it is easy, and the directions so simple that a child can follow them.

### Get It And Try It.

You do not have to buy a costly recipe nor county right. We sell neither one nor the other!

If your grocer, druggist or general store-keeper does not have it in stock, we will send you a sample pound package, of any brand desired, except Aqua-Vitæ and Anti-Ferment (which we put up in bottles), upon receipt of price.

The various brands and their retail prices are as follows: "Viandine," for preserving meats, poultry, fish and game, 50 cents per lb. "Ocean Wave," for oysters, clams, lobsters, fish, &c., 50 cents per lb. "Pearl," for cream, \$1.00 per lb. "Snow Flake," for milk, butter and cheese, 50 cents per lb. "Queen," for eggs, \$1.00 per lb. "Aqua-Vitæ," for medical purposes and for keeping fluid extracts, \$1.00 per lb. "Anti-Ferment," "Anti-Mold" and "Anti-Fly," 50 cents each.

## THE HUMISTON FOOD PRESERVING CO.,

72 KILBY STREET, BOSTON, MASS.

(Continued from last month.)

### How Watch Cases are Made.

It is a fact not generally known that the James Boss' Gold Watch Cases really contain more pure gold than many "solid" gold cases. The demand for these watch cases has led to the manufacture of a very poor grade of solid gold watch cases—low in quality, and deficient in quantity. These cases are made from 4½ to 10 karats, and a 5 or 6 karat case is often sold for 12 or 14 karats. It is NOT economy to buy a watch case so poor in quality that it will soon lose its color, or one so soft that it will lose its shape and fail to shut tight, thus letting in dust and damaging the works, or one so thin that a slight blow will break the crystal, and perhaps the movement. It IS economy to buy a James Boss' Gold Watch Case, in which NONE of these things ever occur. This watch case is not an experiment—it has been made nearly thirty years.

HAZLETON, PA., Oct. 24, 1882.

I sold two James Boss' Gold Watch Cases thirty years ago, when they first came out, and they are in good condition yet. One of them is carried by a carpenter, Mr. L. W. Drake, of Hazleton, and only shows the wear in one or two places; the other by Mr. Bowman, of Cunningham, Pa.; and I can produce one or both of these cases at any time.

SYLVESTER ENGLE, Jeweler.

Send 3 cent stamp to Keystone Watch Case Factories, Philadelphia, Pa., for handsome Illustrated Pamphlet showing how James Boss' and Keystone Watch Cases are made.

(To be Continued.)

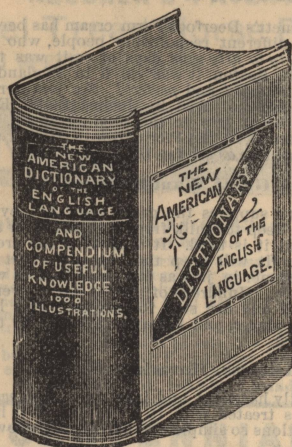
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41.—History of American Petroleum.

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44.—Estimated Population of the World.

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49.—The 15 American Wars.

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51.—Coal Productions of the World.

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53.—Debts, Revenues, Expenditures, Imports, and Exports of the various Nations of the World.

54.—Canada, its Government, Debt, Commerce, etc.

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56.—National Debts, Expenditures, and Commerce of Nations—Amount for each inhabitant.

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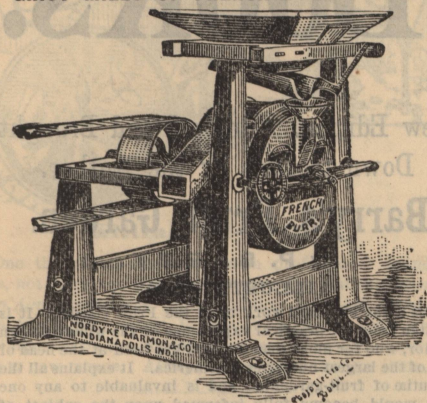
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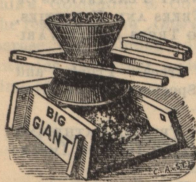


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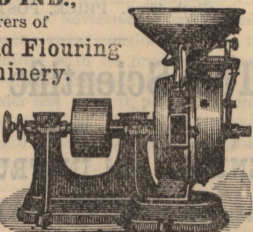
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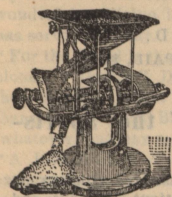


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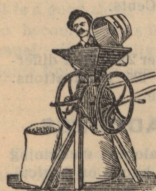
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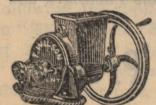
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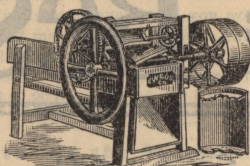
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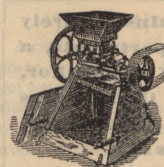
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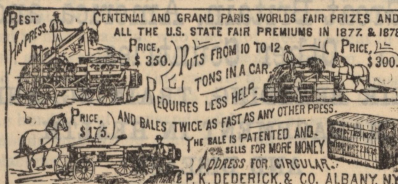


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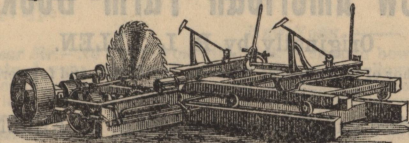
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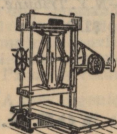
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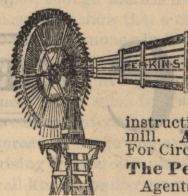
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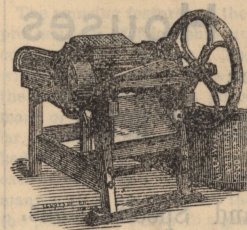
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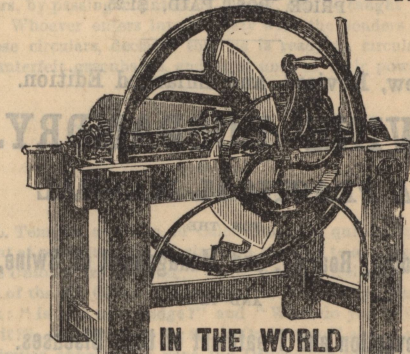
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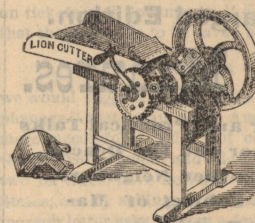
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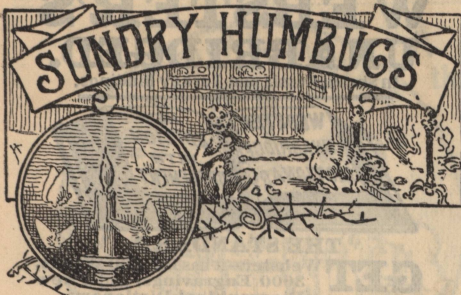
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### Killing Them Off.

One thoroughly conversant with professional swindlers, not long ago stated in conversation that the *American Agriculturist* was rapidly killing them off. While this, to a certain extent, is true, these rascals who live by imposing on the unsuspecting, are constantly resorting to new means. Always be upon the alert for them.

### J. Goldsmith & Co., Swindlers.

James A. Price, Mount Vernon, New York, sends us a batch of documents which he has received from the "Royal New Brunswick Distribution of Cash Gifts." They are signed by "J. Goldsmith & Co., Stephens, N. B., Canada." We have repeatedly exposed in these columns the swindlers at St. Stephens, who endeavor to victimize the unsuspecting. Last April we devoted nearly a whole page to them, presenting illustrations of the coupons, etc. Again in June, we fully ventilated this J. Goldsmith & Co., whoever that may mean. If the readers of the *American Agriculturist* will carefully peruse the Humbug column, they will find the various lotteries and other swindling schemes exposed from time to time.

### The Wonderful Tree Bean of Mexico.

It is noteworthy that all the wonderful seeds offered in late years have been advertised from some small western town. Formerly, the headquarters of astonishing wheats and other grains was in a small Tennessee village. This "Tree Bean" is advertised from a small place in Wisconsin. Having spent considerable time in Mexico, and become familiar with its products, it is a little strange that we never came across this "Wonderful Tree Bean." If any reader has tried it, please to send us a pod, and, if not too late, a leaf. While we suspect what it is, we wish to make sure before exposing what we believe to be a humbug.

### "If you wish to Live Well, Be Well, and Keep Well,"

We should say, if you wish to be well, let all quack medicines alone, especially that of "Doctor" Dutton. Here is a most remarkable circular, with "pictures," setting forth the many virtues of "Doctor Dutton's Vegetable Discovery." We are told that at the age of twenty-two "he was acknowledged to possess more knowledge of the botanical kingdom than any other person on our continent." Having been somewhat acquainted with botanists during the past forty years, we feel ashamed to say that we never before heard of this Dutton. But his wonderful medicine is put out with the same story that has served so many. The statement heads the paper: "For the Blood is the Life." All diseases are due to bad blood. "Doctor" Dutton's stuff fixes the blood, and there you are. What more do you want? We are told that the stuff is "a Blood Purifier! A Blood Mixture" (whatever that may mean). "A Disease Controller!!!" "A Life Elixir!!!" "A Medical Marvel!!!" (The exclamation points are those of the circular.) Now this seems to be quite too much for one poor medicine to be. It is a good thing to let alone. The appeals to persons to become agents for the stuff are more pressing than usual. What a pity that there is no law, as there is in some European countries, to suppress quackery like this.

### "The Magnetic Shield."

Those who have been advocating electricity as the universal remedy, are told that they are on the wrong track, that "with magnetism we get all the benefits ever claimed for electricity, without any of the baleful effects following the application of electricity." This is said in "The Magnetic Shield," a paper devoted to all kinds of Magnetic "Shields" and "Appliances." If the "Shields" are equal to the paper, they must be remarkable. We are told, "Knowledge is power." We think we have heard that before, but it is good. Then "Po-

larity is the Key to Nature, and Magnetism the Fountain of Life." That sounds well, but what does it mean? "Magnetism is the Motor of Life. Its absence is Death." There you have it. If you would not die, keep a supply of magnetism on hand. All this display of learning, this looking into the very nature of things, winds up with: "If you wish for warm feet in cold weather, send \$1.00 for a pair of our Magnetic Insoles."

### Glad to See the Wrong Man.

Sometimes the Bunko chaps "wake up the wrong passenger." One of these well-dressed fellows addressed a middle-aged man on Broadway, with "How do you do, Judge M.? I'm very glad to see you." Much to the surprise of the questioner, the stranger replied:—"I'm glad to meet you; how is your father?"—"Is not this Judge M., of St. Louis?"—"No; I think not," was the reply.—"Pardon me," said the young man, "I mistook you for Judge M. May I ask your name?" Drawing himself up, and in a forcible tone, he replied:—"I am not Judge M.; but I am Dr. Howard Crosby, of New —." Before he could finish, the young man had vanished. Dr. Crosby has been too active in suppressing vice of various kinds, not to be known, by name at least, to all the rogues in the city.

### "Practical Philanthropy."

A curious, if not ingenious, swindling scheme was exposed in the United States Court at New Haven, Conn., not long ago. It is interesting as showing how the most absurd statements, by unknown parties, will be accepted as true without investigation. One Isaac Henry Lockwood, a young man, issued circulars to the principal banking houses in this country and England, stating that a wealthy banker, having when young used the funds of a bank, and stood on the brink of ruin, was saved by a rich old man, who advanced him funds to replace those abstracted, with the pledge that he, the banker, should assist others who might be in similar distress. Lockwood claimed to have seven hundred and eighty thousand dollars in trust, with which to help those who would be frank, and give free information about their thefts. Strange as it may appear, there were numbers at home and abroad who were willing to "give themselves away" to an entire stranger, and actually send him confessions of dishonesty. A postmaster in Connecticut discovered the fraudulent scheme, the young man was tried, found guilty, and sentenced to a year of hard labor in the State prison. The young scamp confessed that he hoped to find a cashier who had not been caught in his thefts, and would be glad to escape detection. Lockwood proposed to get this cashier to steal two thousand dollars more, and let him use it. With this sum he could make hundreds of thousands of dollars by speculating in diamonds—the whole affair being an intricate scheme of blackmail.

### The Counterfeit Money Swindle.

This, while one of the oldest of fraudulent schemes, is now carried on in a manner so different from the one at first adopted, that it has several new features. In the beginning, long lithographed circulars were sent out; these approached the subject with a great air of mystery, and mentioned the object, counterfeit money, under a variety of blind names, such as "United States Chromos," "Cigars," "Documents," etc. The present circular is more brief and business-like, and there is but little attempt made to conceal the fact that it is a proposition to sell counterfeit money. The newest specimen is sent us by a correspondent in Los Angeles Co., Cal., which, being brief, we give in full. There is no attempt, by the use of lithography, to make it appear like an autograph letter, but it is printed in neat script type:

NEW YORK, —.

Dear Sir.—No doubt you will think it strange how I obtained your name and address; it was as follows: My confidential agent, who passed through your town not long since, gave it to me. He said he thought you were a man who was in a position to handle my goods in safety, and I concluded to write to you. If I have made a mistake, do me no harm, and let matters drop. My motto is, never harm a man who is willing to prove himself your friend. My business is not exactly legitimate, but the GREEN ARTICLES I deal in are safe and profitable to handle. The sizes are ones, twos, fives and tens. Do you understand? I cannot be plainer until I know you mean business, and if you conclude to answer this letter, I will send you full particulars and terms, and will endeavor to satisfy you on every point, that if you are my friend, I will prove a true and lasting one to you, be the trade for one dollar or one thousand. Remember I do not want money in advance, as I do not transact business that way. I want simply to convince you that I am just as I tell you, a friend to a friend. Yours in confidence.

Please to return this circular if you mean business.

A very ingenious "blind" is sent with these circulars in the form of a slip, apparently cut from some news-

paper, though there is no clue to the paper. Some of these slips show that a man arrested for having supposed counterfeit money in his possession, but the bills being pronounced genuine by a bank teller, he was discharged. Another slip in a pretended "Washington correspondence" gives some fearful disclosures as to collusion between counterfeiters and persons employed in the Bureau of Engraving and Printing, and the difficulties arising from stolen plates. Still another relates how a well-known broker asserted that a counterfeit bill was genuine. These slips are printed on both sides, and to the unsuspecting have every appearance of being genuine "clippings."

The amusing features of the above document are its protestations of friendship, and its reliance upon the confidence of a stranger. The law which allows the withholding of letters from persons suspected of using the mails for fraudulent purposes, at one time shut off many of these swindlers. But, as in the present circular, the signature is now written; we have sometimes had as many as a dozen copies of the same circular, each signed with a different name. By not having "too many eggs in one basket," they elude the vigilance of the post office clerks to a great extent. To those who have not kept the run of this swindle, we would explain that this circular is merely a feeler, a bid for correspondence. Of the thousands sent out, a few will fall into the hands of persons of a low standard of morals. Only those who are themselves willing to become swindlers, by passing counterfeit money, can be caught by it. Whoever enters into a treaty with the senders of these circulars, declares that he is ready to circulate counterfeit greenbacks, and is at once in their power.

### Cautionary Signals.

#### "Save the Orphan."

L. Templin and Son, of Calla, Ohio, are quite indignant at receiving a lot of circulars relating to a "Grand Art Union Prize Drawing," to be held in Ireland, "in aid of the Mt. Carmel Orphanage," at Stradabally. They ask: "Is it a new dodge?" and "What do you think of it?" It is not new for this "Orphanage," as it made a similar appeal "To Save the Orphan" a number of years ago, and, as at present, made a special call upon Americans. We "think" that whatever the name by which it is called, that no matter how many Right Honorable Earls or Right Honorable Lord Mayors may have supervision of the drawing, the affair in its purpose and in all its machinery, is nothing less than a Lottery. That no matter how often "Save the Orphan" is printed on tickets and documents, it does not disguise the fact that the orphan is to be saved by a Lottery.

AS A MATTER OF POLICY,

we would suggest to the Managers of "Mt. Carmel Orphanage" that an appeal to Americans for aid would be more successful if it did not come in a form which the General Government and all the State Governments, but two or three, have declared illegal. Indeed, in many States, one by selling, as the Lady Supervisor in an autograph letter asks, "even a few of the tickets," would subject himself to a heavy fine, if not imprisonment, for violating the law against the sale of Lottery tickets.

AFTER ALL THE CALLS FOR HELP,

it appears that the "Orphanage" cares for only one hundred and fifty children! Instead of spending so much money on tickets, circulars, "pictures," etc., send over your orphans. If we are to support them, it can be more cheaply done on this side, and not at arms-length at Stradabally.

### Speaks for Itself.

POESTENKILL, New York.

To the Editors of the *American Agriculturist*:

DEAR SIRS.—I wrote you some time ago regarding the "Monarch Potato Digger Co.," of Chicago. I will now say that I have given the Digger a fair trial, and I cannot make it work, nor can my neighbors. The earth and potatoes slip over the end of the tines and heap together. I have written twice to the Company, telling them that I could not make it work, and asking them to refund the money, as promised in their circulars, but they keep putting me off and sending further directions about using the machine. They say they cannot send the money, merely because I say the Digger will not work. Now what would you advise me to do? I have preserved all their letters, circulars, etc. I cannot afford to lose twenty dollars.

Yours, respectfully,  
CHAS. E. BARRINGER.

NEXT!!



**British Farming. — Interesting Summary.**—American farmers are so largely engaged in supplying food to the condensed population of Great Britain (including England, Scotland, Ireland and Wales), that the following condensed summary will be very interesting, and also valuable for reference. The figures, brought up to the middle of 1883, have been carefully compiled by the Government, and are now issued in official form. (In the comparisons with our own country, we are necessarily confined to the last Census. If there were official figures for the present year, the United States would show much larger in comparison.)

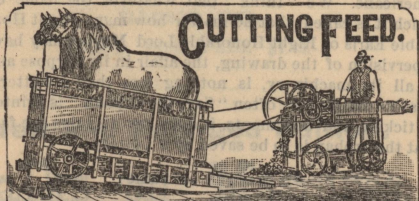
Gt. Britain.	Wheat.	Barley.	Oats.	Potatoes.	Hops.
1881.—Acres...	2,805,809	2,442,384	2,901,275	579,334	64,943
1882.—Acres...	3,000,960	2,355,269	2,533,865	541,064	65,619
1883.—Acres...	2,613,147	2,291,984	2,975,377	543,455	68,027
Average acres	2,806,639	2,329,862	2,903,506	554,613	65,363
U.S. Cen. ac's	35,430,052	1,997,717	16,144,593		
us, 1880.					

Gt. Br.	per acre.	Wheat.	Barley.	Oats.
1881.	23 Bushels.	84 6-10 Bushels.	40 Bushels.	
U. S.	12 97-100 "	22 8-100 "	25 26-100 "	
Total Crop.—Gt. Br.	78,585,812	80,613,225	116,140,240 Bushels.	
Total U. S. Census	459,479,505	44,113,495	407,858,999 Bushels.	
Crop.....				

Note (1) that Great Britain has more acres of oats than of wheat; (2) that the acres of wheat exceed barley by only one-fifth; (3) that the total barley crop exceeds the total wheat product (more beer than bread!); (4) that while we have thirteen times as many acres in wheat, Great Britain gets an average of twenty-eight bushels per acre to our less than thirteen bushels!

Gt. Br.	Cattle.	Sheep.	Lambs.	Sheep & Lambs.	Swine.
1881...	5,911,642	16,143,151	8,497,902	24,581,053	2,048,890
1882...	5,807,491	15,573,884	8,745,884	24,319,768	2,510,402
1883...	5,962,773	15,948,667	9,121,604	25,070,271	2,617,744
Average	5,893,968	15,888,567	8,769,463	24,657,031	2,392,079
U. S.	35,926,153			85,191,656	47,683,951
Cn's					

It is noteworthy that while we have over six times as many neat cattle, and just twenty times as many swine, Great Britain has on her limited territory two-thirds as many sheep as we have—a fact that in part explains the much greater yield per acre of wheat, etc., as sheep are decidedly helpful in increasing the fertility of the soil. No wonder Mr. Lawes recommended these animals to his friend to bring up his barren estate. It will be seen from the above figures that British farmers have twenty-eight per cent more swine in 1883 than in 1881.



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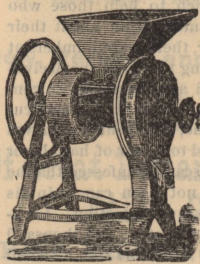
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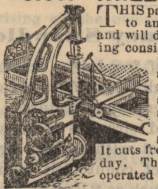
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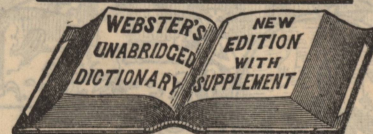
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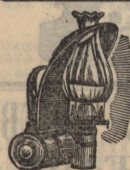
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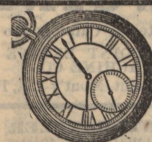
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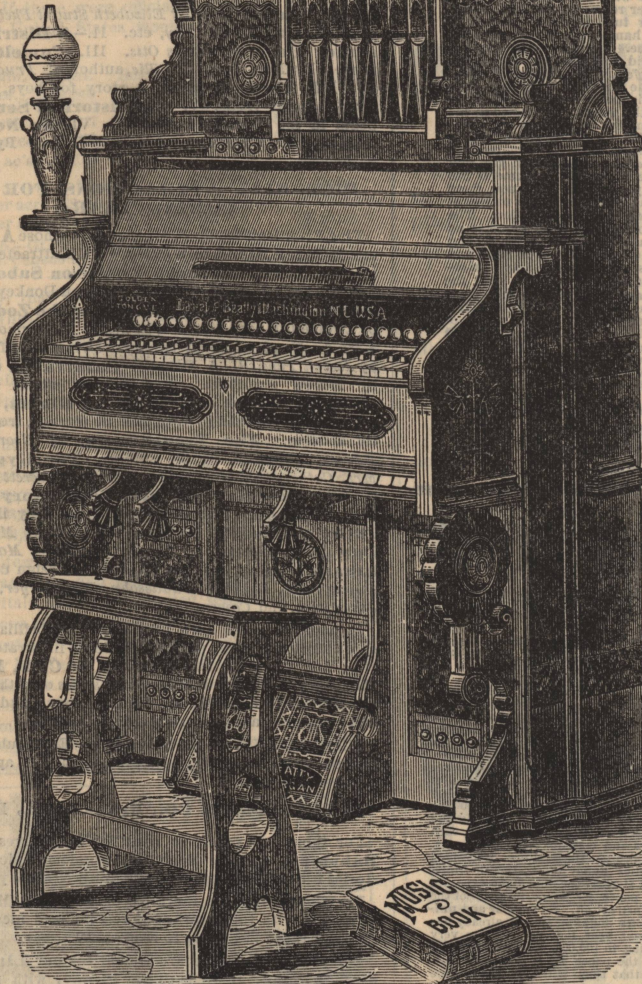
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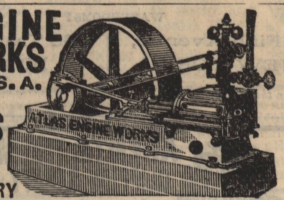
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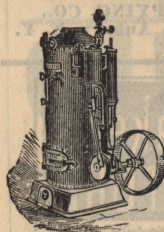
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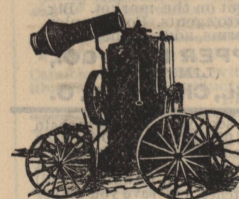
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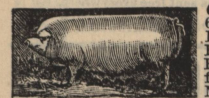
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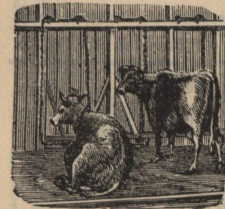


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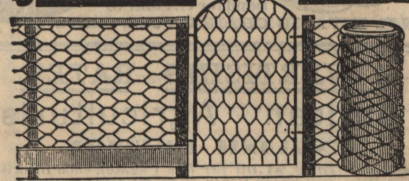
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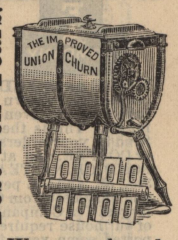


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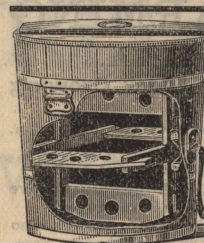
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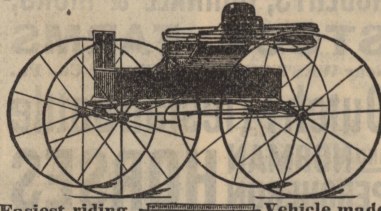
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# For Every Subscriber

TO THE

—AMERICAN AGRICULTURIST.—

## “Foes or Friends?”

A MAGNIFICENT PLATE ENGRAVING, 11x18½.

Philip R. Morris, the Royal Academician, who executed this famous painting, of which our engraving is a perfect plate copy, was born in Devonshire, England, in 1836. In 1855 he won the silver medal of the Royal Academy for best drawing from life. The following year Morris received two medals. Later on he won the gold medal for that great historical painting, “The Good Samaritan.” He likewise won the travelling studentship, and spent some time in the studios and museums of France and Italy. He first exhibited at the Royal Academy, in 1858, “Peaceful Days.” In 1860 he exhibited in the British Institute the “Widow’s Harvest”; in 1864, “Where they Crucified Him,” and in 1865 “The Battle Scar.” At the Royal Academy, in 1865, he exhibited “Voices from the Sea;” in 1861, “Captive’s Return;” in 1865, “Jesu Salvator;” in 1866, “The Riven Shield;” in 1867, “Drifts Wreck from the Armada;” in 1869, “Ambuscade;” in 1878, “The Lost Heir.” This last famous picture secured him the election as associate of the Royal Academy. Subsequently he painted “The Shadow of the Cross,” the celebrated picture purchased by the equally celebrated Baroness Burdett Coutts, (Mrs. Ashmead Bartlett,) who married the Philadelphian.

But the grandest work of this eminent artist has been completed and exhibited this year in the Royal Academy. We allude to the picture,

“FOES OR FRIENDS?”

Two beautiful children gathering primroses in a deer park, are followed by the animals, evidently curious to know what the little intruders are about. The children, suddenly turning, discover them and are filled with alarm and doubt. They drop their basket, plant themselves against a large forest tree with the mingled air of curiosity and fear. The elder of the two casts a look of defiance at the animals, while the other closely hugs her elder sister for protection, the two juvenile faces presenting a most striking contrast. The beautiful animals meanwhile divide their attention between the basket and the children, and are apparently as eager as the latter to discover whether they are *foes or friends*. In the distance, other deer, attracted by the scene, are approaching, the leaders, with their immense antlers, towering above the others. The mutual curiosity, timidity, and trepidation manifested by both children and animals, is admirably brought out. The magnificent forest trees, with their long, overhanging branches afford a pleasing background, while the wealth of grasses gives tone and variety to the picture. This powerful engraving, with its contrasts, strong lights and shades, dramatic contours and expressions, presents an animated rural scene of unequalled richness and beauty which will delight the eyes of every reader of the *American Agriculturist*.

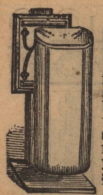
“**FOES OR FRIENDS**” has now been reproduced by our artists (the only reproduction in the United States), and will be presented to every subscriber, old and new, to the *American Agriculturist* for 1884, whether coming singly or in clubs. Subscribers in Premium Clubs who desire the picture, will likewise receive it. It is reproduced on heavy plate paper, and securely packed in a strong tube for mailing. It is delivered **at this office free**. Those desiring us to forward it by mail must, in ordering the picture, send us ten cents to pay cost of postage, packing, etc. **REMEMBER**, this beautiful Engraving will be sent to any subscriber of the *American Agriculturist*, English or German Edition, in the United States and Provinces, on receipt of ten cents for packing, postage, etc., or be delivered here at the office free. Picture now ready. Address Publishers

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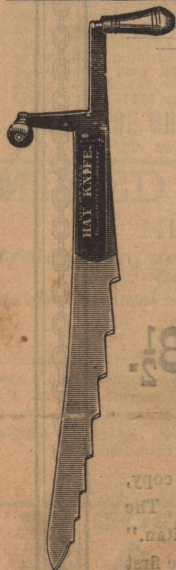
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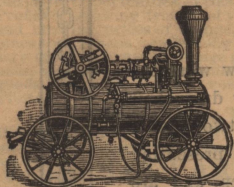
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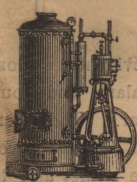
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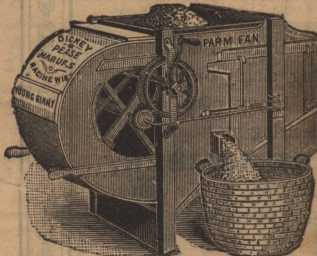
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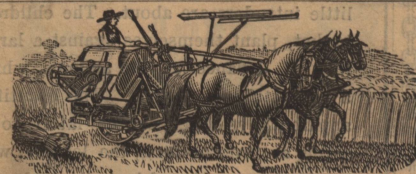
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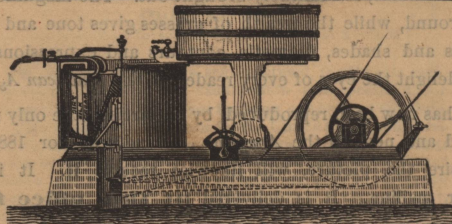


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